The BULLETIN

American Society of Hospital Pharmacists

UNIVERSITY OF MICHIGAN
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COORDINATION OF NURSING
and pharmacy departments

COSMETIC ASPECTS
of pharmaceutical ointments

HOSPITAL PHARMACY IN GREAT BRITAIN
covering development and current status

INTERNATIONAL CONGRESS
of hospital pharmacists meets in Switzerland

ANTISEPTIC PROPERTIES
of chemical disinfectants

℞ VOLUME 9 NUMBER 6 NOV-DEC 1952

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The BULLETIN
American Society of Hospital Pharmacists

NOV-DEC 1952

VOLUME 9 NUMBER 6

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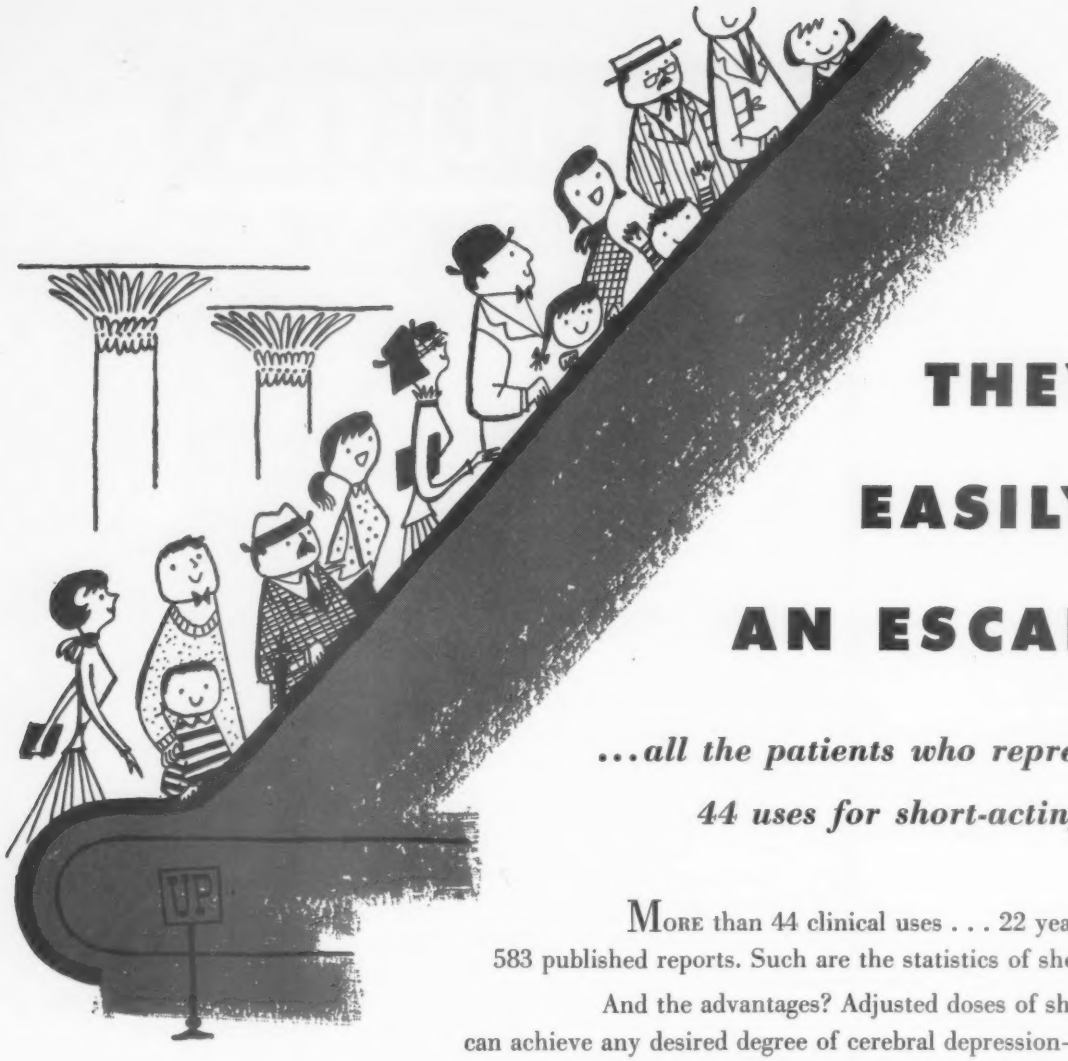

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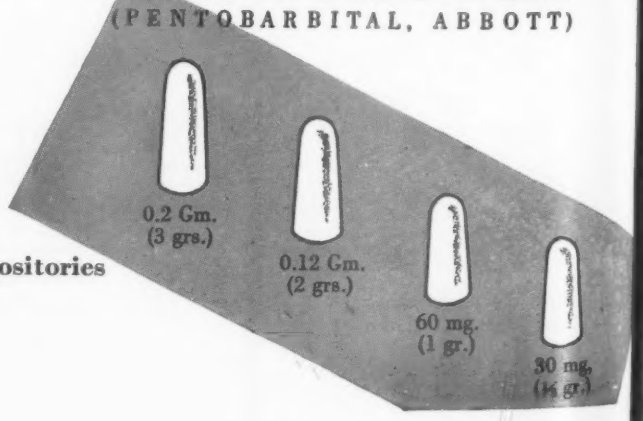

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LETTERS

Appreciation from Abroad

DEAR SIRS: . . . It has been a wonderful experience for me and my first duty is to thank you as best I can for all your kindness. I should be grateful if, through THE BULLETIN, you would express my thanks to all my American colleagues who gave me such a wonderful time. . . . I was impressed most, I think, by the real sense of fellowship and purpose I found everywhere and then too, by the youth and enthusiasm of the ASHP members.

. . . The ASHP has done a wonderful job of work in ten years. . . . I am looking forward to meeting some of you again next year in London and Paris.

HERBERT S. GRAINGER, *chief pharmacist*
Westminster Hospital
London, England

DEAR SIRS: I want to tell you how wonderful it was, how much I enjoyed the convention in Philadelphia, the visits in Washington, Detroit, Indianapolis and New York. Thank you very much . . .

Those three weeks which I spent in the U.S.A. among your hospital pharmacists was the most glorious experience of my life.

KURT STEIGER, *chief pharmacist*
Kantonsapotheke
Zurich, Switzerland

From a Past-President

DEAR SIRS: Will you kindly express my appreciation to the members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for the honor bestowed upon me. It was a wonderful week culminating in the banquet honoring the past presidents.

HANS S. HANSEN, *administrator*
Grant Hospital
Chicago, Ill.

The Decennial Issue

DEAR SIRS: Congratulations on the Decennial Issue of THE BULLETIN! Thanks to all responsible for this outstanding publication.

SISTER M. LAURINA KLEIN, *pharmacist*
St. Anthony Hospital
Terre Haute, Ind.

Appreciates Services

DEAR SIRS: . . . I am very much interested in being notified of openings in hospital pharmacy, especially if the positions are in Missouri, Iowa or Illinois. I appreciate the service that has been rendered to me by your splendid organization.

The last issue of THE BULLETIN was indeed beautiful. It was circulated among many pharmacists and the typical comment was "wonderful book." As for myself, I read each and every issue from cover to cover.

ALBERT A. DALLAVIS
117 Maple Street
Libertyville, Ill.

DEAR SIRS: Under separate cover I am returning the hospital formularies from the Reference Library of the American Pharmaceutical Association. Kindly accept my sincere thanks for the use of the books as I have derived much benefit from them.

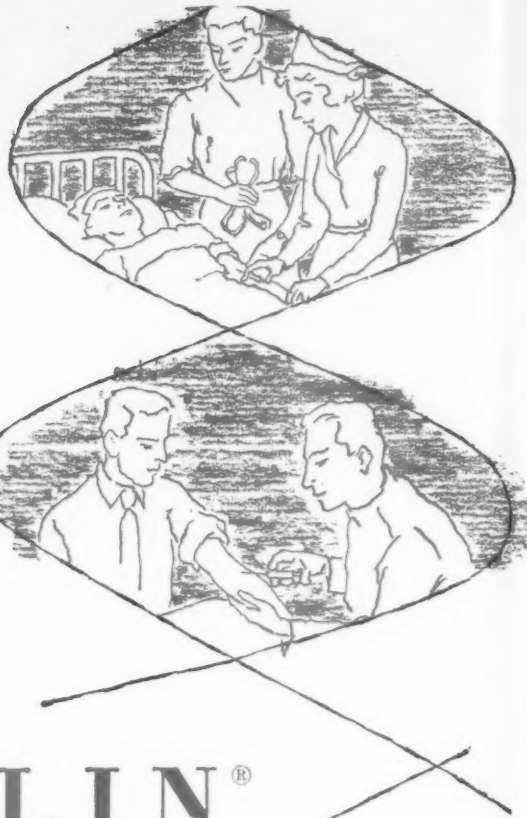
SISTER M. GEORGENE, *pharmacist*
St. Francis Hospital
Freeport, Ill

DEAR SIRS: I want to thank you for the assistance you gave in referring pharmacists to our hospital. It is indeed a wonderful service to be able to call on the Association. It was most gratifying to have prompt replies to your appeal in our behalf.

SISTER ROSE OF PROVIDENCE, *pharmacist*
Sacred Heart Hospital
Spokane, Washington

DEAR SIRS: Thank you for the formularies which were sent to us on loan from the Reference Library of the American Pharmaceutical Association. They have been very valuable to us and we appreciate the fact that we can secure help from such an organization.

MARY LANCASTER, *chief pharmacist*
Holy Name of Jesus Hospital
Gadsden, Ala.



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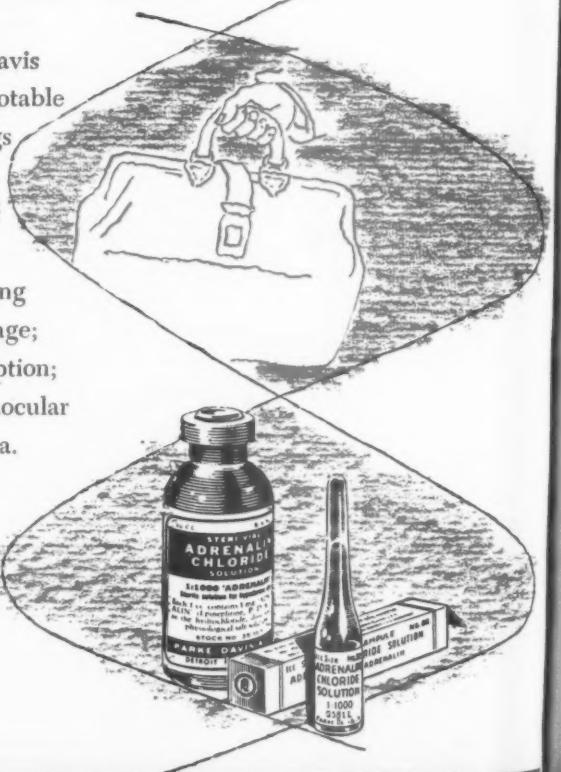

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EDITORIAL

Presentation of Papers

by DON E. FRANCKE

In the early days of the SOCIETY it was usually a problem for the program chairman to obtain enough papers to schedule for the allotted time. However, as the SOCIETY has grown the problem has reversed itself and it is now one of finding sufficient time for those who wish to make a presentation. One way to solve this problem is for the author to present a summary of a paper or report. Some suggestions along this line are contained in a recent booklet, "Hints to Authors," published by the American Chemical Society. Some of the following suggestions contained in this booklet will be of interest to most of us.

It is not necessary that the oral presentation of the paper follow the form in which the article will appear in the journal. In many cases, that probably should not be done. You will have 10 to 20 minutes to discuss work which may have taken months or years, and you must select carefully the material to be presented. Consider whether the audience would be interested in the proof or the results, and plan the emphasis accordingly.

There is an old rule which is still good: (a) Tell your audience exactly what you are going to tell them; (b) Then tell it to them as you have promised; (c) Finally tell them exactly what you have told them. Specifically you should give them a brief introduction containing the nature, purpose, and scope of work. The work done and the results obtained are then reported, probably illustrated with curves and tables of selected data. Finally summarize, and tell the significance of the work.

Delivery. The most agreeable style of presentation is conversational, but to carry it off, the speaker must know what he is going to say, and that he can say it within the allotted time. One advantage of this method is that the speaker usually has to think what he is going to say next; as a result his rate of delivery is slow enough to permit the audience to follow. Notes should be used; brief notes on small numbered cards are excellent.

Refrain from reading a manuscript or reciting a memorized speech. If you must read the paper, prepare a special draft and *read it well and slowly.* Most of us grossly overestimate our ability to speak and to read.

Oral practice is highly recommended.

Use short sentences.

Hold up your head; open your mouth; enunciate clearly.

Don't drape yourself over the rostrum; stand erect. The vocal delivery will be better, and the audience will not be distracted by the pose.

The beginning and the end of each sentence are important. Don't let your voice trail off at the end.

Vary the pitch and emphasis in your voice within its normal range, but don't "make a speech" or you will sound insincere.

Don't wave the pointer around aimlessly. Pick it up when you use it, and set it down when you are finished.

Vary any expressions which have to be repeated. "May I have the next slide, please?" becomes monotonous after eight or ten times.

Keep your own interest in what you are saying and you will keep your listeners' attention.

PA Systems . . . Notice the speaker who precedes you, see how far he stands from the microphone, note how loud he appears to be talking, and other matters. When you start, check yourself carefully by listening to the first few sentences. If you do not become too wrapped up in your topic, check the audience in the rear of the room to determine if they are listening or merely trying to listen. If there is only a fixed microphone, and you must gesture or point to the screen, *stay at the microphone.* Of course your slides should be so good that they do not need explaining—they are supposed to explain your talk. Even a lapel microphone will not pick up your voice if you suddenly turn your head away; all the audience will hear will be the scratching of the cord on your shirt.

Timing. A time limit has been set for your paper. Make sure that you stay within it. Practice the actual delivery in advance, and time it carefully. One of the most frequent complaints about the conduct of our meetings is that schedules are not followed exactly. Usually an investigation will show that one speaker who ran overtime caused the dislocation of an entire session, with resulting inconvenience and annoyance to other speakers and auditors.

We would like to see some of these suggestions tried at our next convention. It would seem particularly advantageous to have committee reports which are always printed in full in THE BULLETIN presented in summary form. The same would be true of most of the technical papers given. The types of papers which do not readily lend themselves to this type of presentation are those which recommend policy or outline long-range objectives or accomplishments such as those contained in the presidential address and occasionally other papers of this nature. However, we do believe that the presentation of more papers in summary form would not only make our meetings more interesting but it would give more pharmacists an opportunity to participate and at the same time make our meetings more valuable.

COORDINATION OF NURSING AND PHARMACY DEPARTMENTS

by DOROTHY M. MORGAN

OF ALL modern enterprises none is more complex than the hospital. The early history of hospitals, however, points to the fact that this was not primarily the case. Departmentalization as we know it evolved slowly with the development of the various specialties needed to treat the diseased and injured and return them to health. Today because the laws of most states and provinces require that only licensed pharmacists may compound prescriptions, and because pharmacy has advanced as a profession, the hospital pharmacy has become a most important department in the hospital scene. The Pharmacy is now the most extensively used of the therapeutic facilities of the hospital.

The Nursing Department must work with many hospital departments these days in contrast to the few of yesteryear. In order that there be perfect coordination between nursing and these departments, it is necessary that nursing develop not only a respect for the values of the contributions of these departments toward the aims of the hospital, but also an objective approach toward and a sympathetic understanding of their problems. On the other hand, other hospital departments must have an appreciation of what nursing can accomplish and what its problems are if the Nursing Department is to perform functions effectively. All this may be accomplished only through a steady process of education. We must all work to develop insight into our respective values and needs. It is not enough to say "the policies of my department are thus and so and therefore I must so act." It is also necessary to state *why*, giving reasons backed up by sound philosophy. Only through the establishment of a mutual trust and a knowledge of needs can true cooperation flourish between departments. We need to learn and to know more about human

DOROTHY M. MORGAN is Director of Nursing, University of Chicago Clinics, Chicago, Ill.

Presented at the Eighth Institute on Hospital Pharmacy, Toronto, Ontario, Canada, June 23-27, 1952.

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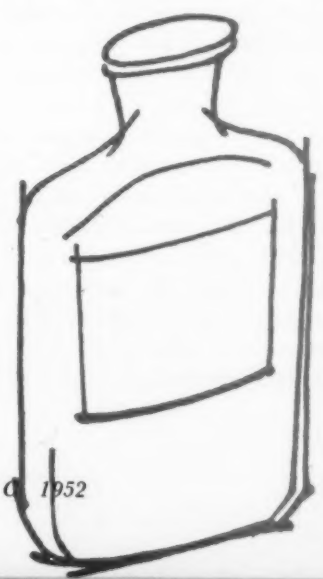

relations and the art of getting along with each other in hospitals. If we do this, many of our problems will be eliminated.

The values and needs of nursing are becoming more apparent every day with the increasing publicity given to nursing shortages. From the literature and in interview with hospital pharmacists it would appear that already many pharmacists have given much thought to the question of how they might help nurses in the present dilemma. In assisting the nurse, these pharmacists have improved the efficiency of the operation of their departments with a resultant improvement in working conditions for both nursing and pharmacy.

Present Trends

Recent trends in the working arrangements between pharmacy and nursing have stressed the following philosophies:

1. Keep the nurse on the nursing divisions.
2. Eliminate all pharmaceutical work from the nurse.
3. Keep nursing participation in accounting to a minimum.
4. Educate the nurse, both graduate and undergraduate.

Let us examine carefully these concepts so that we may clearly see what each contributes toward the progress of our two departments and of the hospital for better patient care.

Keep Nurses At Bedside

What *mutual* advantages do we derive for example from keeping our nurses at the bedside, and how may this be made possible? An organized messenger service to pick up drug baskets for stock drugs and prescription requisitions and to deliver drugs including narcotics at regular intervals during the day eliminates wastage of nursing time spent in going to and coming from Pharmacy or of waiting at the Pharmacy window, and leaves that time free for patient care. It also cuts down on the numbers of interruptions that the pharmacist might have each day. The fewer the interruptions the more he is able to concentrate on the business at hand, and the less the chance for error.

The messenger service may of course be more effective if the nursing staff will have the drug baskets and requisitions ready and in order when called for. The latter should be made out complete with patient's name and full initials, the date, the floor, the room number, whether the medication is to be used orally or hypodermically, the size of the dose and frequency of administration, the doctor's name, and the signature of the nurse in charge. The pharmacist should not have to telephone for such details. Inadequately completed requisitions waste everyone's time.

Nurses Are Not Pharmacists

May we next examine the philosophy of eliminating all pharmaceutical work from nurses? What do we mean by this? Nurses on the floors are given the responsibility of pouring medications, but from the standpoint of safety to the patient they should never be charged with the pharmacist's duties of manufacturing, bottling and labeling of drugs, unless of course under the direct supervision of the pharmacist. A good part of the pharmacist's education has been spent in learning how to do these things properly. He is a specialist in his field. Why not let him practise his profession? How often, for example have we seen the manufacture of boric and saline solutions on each nursing division in a hospital! In this case, the larger the hospital, the greater the waste of nursing time, the possibility of error, and the higher the expense. How much better if these were prepared in Pharmacy in standard size bottles with standard labels and where they would be handled professionally. With certain solutions, too, containers just large enough for a single treatment might be advantageous. With bulk solutions for example of saline and boric acid there is always the danger of contamination each time the container is opened for use. Bulk solutions made up in gallons could however be made of Lysol, carbolic acid, aqueous Zephiran etc., and at the correct strength for use.

The mixing of penicillin and other antibiotics in Pharmacy also saves nursing time, minimizes the possibility of error and makes for standardization.

In relation to the use of penicillin, this is now available on the market in disposable units and also saves nursing time on the divisions and the breakage or loss of syringes since a metal syringe is used. It is more expensive in itself than penicillin diluted in Pharmacy but this extra cost may be counterbalanced by eliminating the expense of broken and missing glass syringes.

Pre-bottling and labeling of frequently called-for medication by the pharmacist saves his time as well as that of the nurse, and also standardizes. Nothing looks more efficient than a row of bottles in a nursing division drug cabinet or on a dressing carriage, all of standard size and label! It is an excellent idea too for Pharmacy to provide each bedside table with bottles of back lotion and mouthwash of convenient size, carefully labeled, and a shaker of talcum powder. No drugs or solution should ever be bottled or labeled out of a larger container by a nurse.

With regard to the use of narcotics in solution form, there appear to be two schools of thought. On the one hand, it is time-saving to have narcotics available in bulk solution. On the other, however, the control of these narcotics is more difficult in that the careless nurse will "shoot off" excess solution drawn up into a syringe and throw off the narcotic count. Also a single dirty needle can contaminate not just one dose but a whole bottle of solution. For these reasons many hospitals and pharmacists do not believe in multiple dose vials and still prefer to use narcotics in tablet form or where possible to supply narcotic solutions in single doses. They claim they cannot depend upon groups of people to exercise the same care as a single individual might. The pharmacist and the Nursing Department interested in protecting the patient and the reputation of the hospital will together weigh the pros and cons of their particular situation and make the decision which they feel will give the best results.

With respect to the writing of prescription requisitions, we find a diversification of ideas. Some medical and nursing staffs believe that for the sake of accuracy *all* prescription requisitions should be written by the attending physician or his house staff, *i.e.,* when the order is written in the doctor's order book, a prescription for Pharmacy should be written by him at the same time. Others are of the opinion that the nurses are perfectly capable of copying the doctor's orders onto the prescription requisition which goes down to Pharmacy. A middle view of the situation would seem to provide a satisfactory solution to the problem, *i.e.,* where there is a prescription which requires compounding, the doctor or his intern should write the order and also the prescription requisition; where the order is a single name item, then it would appear that the nurse might very well write the requisition. The decision in this would depend on the nursing staff involved, *i.e.,* whether it is graduate or student, and whether or not it is capable of usually exercising due care.

In relation to compounded prescriptions, a useful purpose is served if the pharmacist would not only place the prescription number and the directions for administering on one label but on the opposite side of the bottle secure another label containing the prescription components. By this means the nurse giving the medication will be aware of the contents of the prescription and will be better prepared to observe the effect of the drug on her patient. Intelligent nursing may be accomplished only when it is backed up by knowledge. No nurse can know too much about the drugs she gives. If this second label is secured to the bottle with scotch tape, it is easily removable if the doctor wishes the patient to take the residue of the medication home. Compounded prescriptions when numbered may be re-ordered by the nurse by number, thus making it unnecessary for the doctor to write another prescription.

An idea for the Pharmacy in separating stock drugs from prescriptions in the drug baskets is to place the latter in paper bags. Safety in delivering narcotics is secured by sealing them in envelopes plainly marked for the head nurse.

Pharmaceutical work for nurses may also be minimized if the pharmacist has his Pharmacy so systematized that the evening and night nurses can find their way around it easily when he is off duty, and they are required to act for him. Many trips to Pharmacy may be eliminated for such nursing personnel if emergency ampuls such as aminophylline, Coramine, digitoxin etc. are kept on the floors. Replacements may then be made in the morning and the drug charged to the patient. The pharmacist may also serve the nurse well by establishing an emergency shelf in Pharmacy for the more common antidotes.

Relieve Nurses Of Accounting

Speaking of charges brings me to my third point which considers keeping nursing participation in accounting to a minimum.

The prime duty of the nurse is to render professional nursing care to her patient. All else is secondary to this in importance to her. She is neither trained to be an accountant nor does she wish to be one. For economy's sake then the wise pharmacist will see to it that this burden on the nurse is reduced to a minimum, and that the simplest yet the most effective charge system is set up for all charges out of his department. Few pharmacists have found it advantageous to stock all drugs purchased, on the nursing divisions. Losses under this system are extremely high since all drugs in the drug cabinet which are not under a patient's name as his prescription are more apt to disappear than those which bear his name. What is hospital property unfortunately seems to become public property with resultant misuse.

The system of drug supply to the nursing floors which is finding greatest favor seems to be that of maintaining as small a number of stock drugs on the floors as possible. These could include such items as boric, carbolic, alcohol 70 percent, aspirin, codeine, surgical lubricant, the more commonplace laxatives, etc. These would, of course, not be charged to the patient. For the sake of public relations it does not pay to charge a patient for each aspirin administered. To set up a scale of small charges for everything used in the treatment of the patient is not only exceedingly irritat-

ing to him, but results in what the accountants call "nuisance charges" which are scarcely worth processing through the business office or putting through an accounting machine. If the cost of these must be covered, it seems more equitable to include them in room and board charges.

With a reasonable supply of stock drugs on the floors for the use of patients, prescription requisitions are reduced to such a number as not to become too great a problem for the nurse or her ward secretary. Mr. Walter Frazier, President of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS has compiled a list of stock drugs which is acceptable. In these days when many Nursing Departments operate on a budget, the Pharmacist can assist the Director of Nursing to control expenses with regard to stock drugs by listing these expenditures for each nursing division at the end of every month. Where a floor shows an excessive expenditure for any one month, the cause may then be traced back either to an unusually high census or leakage, as the case may be.

Much is being done these days to eliminate the amount of writing which the nurse must do in setting up pharmaceutical and other charges. The card-o-plate variation of the addressograph equipment is being installed where the numbers of patients involved is sufficiently high or the nursing shortage great enough to justify the expense of this system. The charge-o-plate system has been in vogue in department stores for some time and with satisfactory results. The plate being used in hospitals gives the patient's name, street and city address, attending physician's name and the medical service and precludes the writing of all these details at the head of all chart leaves and requisitions. It also serves to eliminate errors. In one hospital where this is used, further steps were taken to reduce the time of the nurse consumed in writing prescription requisitions by originating a type of Bedside Note form which is unique in that a "snap-out" carbon copy is made of each page of nurse's notes so that a list of all medications administered is readily available. The "snap-out" sections are forwarded via the regular messenger service to the Pharmacy where they are priced and totalled and then the price ticket is sent to the accounting office to be posted to the patient's account.

One requisition form for prescriptions which saves the time of a hospital pharmacist includes a section for the use of the pharmacist only, for pricing the charge to the patient. Before this section was incorporated in the pharmacy requisition, much of the pharmacist's time was spent in heading charge slips with the patient's name, room number and other details.

Education

The value of teaching student nurses drugs and solutions, materia medica, and pharmaceutical chemistry has long become apparent to many a hospital pharmacist. Most supervisors and head nurses too avail themselves of the privilege of consulting with the hospital pharmacist as the new drugs appear so as to keep informed, just as do the residents and interns. If he is an alert pharmacist, he will keep a card index for reference purposes on all drugs contained in Pharmacy. In one hospital, the pharmacist appears regularly once a month at Head Nurse Meeting not only to iron out problems which may arise between his department and the Nursing Department but to discuss new drugs. Any nursing department would be wise to include lectures by the hospital pharmacist in its in-service training program for graduate staff nurses.

The use of the metric system imposes problems on nurses, and in particular on those not mathematically inclined. Unless care is exercised if the system is expressed in grams, the difference of one zero may result in the multiplication of the dosage ten times, with drastic results! For amounts up to 100 milligrams, it would seem more advisable to write out the dosage in longhand than to express it in decimals and grams. The pharmacist might contribute much toward alleviating the situation if he would supply to the nursing divisions an abbreviated ready reference for nurses, giving the more common dosages in grains, grams and finally milligram designation. The metric system is something with which the nurse must work for a time before she understands it. Any supervision which the pharmacist can give toward strengthening the nurse's knowledge of the metric system is always most helpful.

Speaking of "supervision" brings to mind the fact that the Minimum Standard for Pharmacies in Hospitals set out in the Manual of Hospital Standardization published by the American College of Surgeons suggests that the hospital pharmacist should have supervision over a semi-monthly inspection of all pharmaceutical supplies on nursing units. In these busy times, it is doubtful if the hospital pharmacist could find time to visit the nursing divisions that frequently. However, the experience could very well be turned into an opportunity for learning and teaching for both nurse and pharmacist if mutual problems could be discussed and information shared.

As a matter of fact, there is scarcely a limit to the good which may accrue to a hospital, especially to its patients and nursing personnel through an efficiently managed Pharmacy Department and an interested pharmacist.

Cosmetic Aspects of Pharmaceutical OINTMENTS

by MAISON G. DENAVARRE

FOR YEARS pharmaceutical chemists have been seeking an universal ointment base.

But there is no universal ointment base, for the utilization of medicaments from an ointment is not yet completely understood. Factors outside of the base and its active ingredients have not been sufficiently studied. A greater understanding of basic principles and a standardization of technics is indicated.

Thus, young skin is more readily penetrated than older skin. Human pathological skin reacts differently from healthy skin, but how? The condition of general body health will affect cutaneous reactions. Differences in sex, time of year and environment all affect the reception of the ointment by the skin. Published data on these "other factors" is meager and inconclusive.

The usefulness of surface active agents in ointment formulations has been recognized by numerous workers. Too few have considered the possible consequences resulting from increased penetration of the normal and diseased skin produced by ointments containing penetrating agents.

Cationic agents have a bad reputation for irritating mucuous membranes. *Anionics* are widely used but should be more suspect. *Non-Ionics* in general are the safest of them all. Mixtures of any of these should be thoroughly investigated before used.

However, my thesis concerns itself with the advances in the formulation of the bases themselves together with their potential usefulness.

Most of the recent advances in ointment bases stem from a decade or more of usage in cosmetics. These developments can be easily summarized by the following classifications:

1. Lanolin alcohols.
2. Cera Emulsificans or Lanette Wax.
3. Pure and self emulsifying glyceryl monostearate, like Tegin.
4. Polyoxyethylene derivatives of Spans, such as Tweens and Crills.
5. Polyethylene glycols and Carbowax and their fatty acid esters.

Other materials have been developed and used but these are the significant ones. Emulsions made from any of these materials must be preserved against microbial growth and rancidity. Generally a concentration of 1:750 of methyl-*p*-hydroxybenzoate is adequate, dissolved in the water phase.

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Requirements Of An Ointment Base

Much useful work has been done in making ointment bases by understanding and regulating:

1. Penetration into skin.
2. Absorption of active ingredients.
3. Release of medicament.
4. Particle size of insoluble medicaments.
5. *p*H.
6. Incompatibilities.
7. Cosmetic acceptance.
8. Emollience.
9. Ease of manufacture and use.

Petrolatum as an ointment base still has its place. However, it is not quite as innocuous and sinless as some have believed. Both solid and liquid petrolatum dry the skin and are known allergens, though not common ones. Evenso, where medication is intended to stay pretty much on the surface of skin or to be released slowly as ammoniated mercury in bleach creams, petrolatum is a desirable vehicle. It is still the best base for sulfur therapy and not too bad as a vehicle for sulfa ointments.

Lanolin and mixtures of it with petrolatum have the advantage of somewhat increased penetrability and diffusion over petrolatum alone.

Emulsified Ointments

Ointment of Rose Water U.S.P. has finally gone through the changes proposed by this speaker over 15 years ago.

The optional use of liquid petrolatum in place of sweet almond oil results in a better cream, that is free from rancidity, better cosmetic acceptance and less allergenic in character. However, the amount of borax and water is still too small. It could be doubled with better results. Generally, borax is used in the ratio of one part borax to 15 parts beeswax. Such a formula could easily hold 28-30 percent water. Cold cream, the other name for this ointment, is compatible with alkaline or neutral medicaments only. It has a *p*H between 8 and 9. Because of its soap content, it cannot be used with cationic germicides. Salicylic-benzoic acid combinations, resorcinol, zinc oxide and most phenolic substances should not be dispensed in cold cream. Tar and its derivatives are exceptions, however.

Now we come to the first major ointment change in over a generation or, more, the use of lanolin alcohols to make a so-called absorption base. But this change had to come from England. Under the title of "Ointment of Wool Alcohols" the British Pharmacopeia recognizes a mixture made from:

Formula Variations for Ointment of Wool Alcohols

	B.P.	McEwan	Firth	Michaels	DeNavarre
Wool alcohols Gm.	60	60	60	60	60
Hard paraffin Gm.	240	240	140	170	150
Soft paraffin Gm.	100	300	200	170	240
Liquid paraffin Gm.	600	400	600	600	450
Lanolin Gm.	—	—	—	—	100

Variations of Firth, McEwan and Michaels are tabulated alongside of each other to show their deviation from the official formula. The B.P. product is too hard and tends to be incompatible with many medicaments after hydration. DeNavarre's addition consists of 10 percent lanolin which in my opinion makes an ointment base that emulsifies more readily. Further, none of these bases just described can be counted on to hold more than about 40 percent aqueous liquids with any degree of stability from summer through winter. The emulsifiers just aren't "strong" enough, the Hydrous Ointment B.P. not withstanding. The anhydrous ointment is considered a good vehicle for calcium penicillin.

A more useful base consists of:

Sorbitol sesquioleate (Arlacel 83)	6%
Ceresin 64°C.	15%
Petrolatum White	24%
Mineral Oil 65/75	45%
Lanolin anhydrous	10%

Sorbitol sesquioleate, in this writer's opinion, makes for greater aqueous addition and stability especially when mixed with lanolin. In fact, the B.P. Ointment of Wool Alcohols could be "pepped-up" with a few percent of sorbitol sesquioleate. The official ointment, and the sesquioleate formula can both be more easily emulsified if a trace of mono or polyvalent metal soap be formed *in-situ* during emulsification. The final hydrous emulsion must be either well triturated or homogenized for smoothness. Since ointments made from absorption bases are non-ionic they can tolerate practically all kinds of medicaments whether soluble or insoluble—when properly made.

Use Of Higher Alcohols

Under the title Cera Emulsificans or emulsifying wax, the B.P. now recognizes a material originally offered in world markets twenty years ago under the name Lanette Wax. The B.P. product consists of:

90 Gm. Cetostearyl Alcohol
10 Gm. Sodium Lauryl Sulfate
4 ml. Distilled Water

The B.P. standards for cetostearyl alcohol have been criticized rightly for being too low, allowing inferior material to be used. The melting point should be at least 48°C. and the hydroxyl value

could be easily raised to exclude hydrocarbon adulterated material. The N.F. cetyl alcohol hydroxyl value lower limit is similarly too low.

Emulsifying wax, B.P., or Lanette wax of commerce forms emulsions with water very readily. They are stable, easy to apply, spread and penetrate well. Some of my British contemporaries will not agree that the sodium lauryl sulfate present in ointments made with this wax, if used for any length of time, will sensitize the skin and will sometimes do so on first contact. I have seen the condition first hand many times. The allergen has been established as sodium lauryl sulfate.

The U.S.P. recognizes a hydrophilic ointment which is a variant of the B.P. Emulsifying Ointment, embodying the emulsifying combination of sodium lauryl sulfate with higher alcohols to which petrolatum has been added. This emulsified ointment is compatible with many water soluble medicaments and insoluble powders such as zinc oxide. The ointment is neutral to faintly acid in reaction having a *p*H of 6.9 to 7.0 when made, therefore having the incompatibilities of acid reacting substances. These bases are contraindicated in ophthalmic ointments or in prescriptions containing cationic germicides.

Monoglycerides

Close upon the heels of Lanette Wax or vice-versa, came self-emulsifying glyceryl monostearate. If 10-15 percent of this material is mixed with 3-5 percent spermaceti and a like amount of mineral oil and polyol, it forms a fine glossy emulsion with water, by simply placing all the materials plus water together, heating to about 90°C. and mixing. The monoglyceride cream resembles a stearic acid vanishing cream but forms more readily. It is non-crystalline or grainy as are ordinary stearate vanishing creams. It is stable to wide variations in temperature.

Oils and fats can be added for their emollient effect, but the water content must be at least 50 percent in the finished cream. If the batch does not look smooth on the first mixing, simply re-heat and mix over again. Soap contained in the monoglyceride gives it self-emulsifying properties and endows the cream with the incompatibilities of alkalis or soaps. Thus, cationic germicides, polyvalent ions, zinc oxide and related substances cannot be added to this type of ointment base. One thing that can be said for this class of emulsions is that in my experience, I have never seen or heard of an allergy resulting from their use.

Monoglyceride emulsions can be altered in many ways. Thus, glycerin, sorbitol syrup, or propylene glycol can be added as plasticizers. The glycol exerts more preservative effect than the other two polyols but it takes at least 15 percent propylene glycol to be a preservative. Glycol stearates, such as propylene and diethylene glycol stearates possess similar properties and are used in much the same way.

When pure, soap-free glyceryl monostearate is modified by the addition of 6 to 10 percent of a surface active agent like sodium lauryl sulfate or oleyl diethylamide phosphate; the material can be used to form emulsions stable to electrolytes and pigments like zinc oxide. It is used in about the same way as self-emulsifying glyceryl monostearate. Incompatibilities will depend on the surfactant added.

The Non-Ionic Polyethylene Glycol And Polyol Fatty Acid Esters

When ethylene oxide has been added to a fatty acid ester, the resulting product is called a polyoxytheylene derivative. The Tweens are of this type.

Under certain conditions, ethylene oxide reacts with itself producing polyethylene glycols; when the molecular weight goes above 1000, the products become paste-like; at a molecular weight of 4000 the material is a hard, wax-like compound that is still water soluble.

The polyglycols can be used as such or they can be esterified to form materials like polyethylene glycol 400 monostearate. This entire family of materials, in natural form, are all non-ionic.

As a group fatty acid esters of any polyol, such as propylene glycol, glycerin, sorbitol, mannitol, and polyethylene glycols show wide differences in behavior depending on the amount of monoester, free fatty acid, composition of the particular type of fatty acid, and free polyol. Thus glyceryl monostearate from different sources behaves differently. The glyceryl and glycol esters have been in use long enough to understand these variations. But the fatty acid esters of polyglycols and Carbowaxes are newcomers. As a result many people are unable to get satisfactory or duplicable results.

In formulating emulsions from this group of materials, be sure to watch temperatures, rate of mixing and mixing time. You can get either thick or thin, glossy or grainy emulsions from the same formula depending on the procedure used.

Ethylene Oxide And Sorbitol Esters

While the vendors of absorption bases and glyceryl monostearate emulsifiers introduced a new approach in liquid and solid emulsions for drug and cosmetic use, the largest contribution to commercial emulsion science came with the introduction of sorbitol and mannitol and their fatty acid derivatives under the names of Spans,

Tweens, and in Europe, Crills. Sorbitol and mannitol oleates revolutionized absorption base formulations and creams made from them. Soon it was discovered that the normal stearates, oleates, laurates and similar fatty acid esters of sorbitol and mannitol or their anhydrides could ract with ethylene oxide, thus making the resulting product a stronger emulsifier. The number of moles of ethylene oxide that can be added is endless. The more ethylene oxide present in the compound, the more water soluble it becomes. Thus, lanolin is now rendered water soluble by treating it with ethylene oxide. All are non-ionic emulsifiers.

Actually, the German Emulphors and Igepals antedated the Tweens, but were designed particularly for the textile trade. The Tweens were the first ethylene oxide reaction products of polyol fatty acid esters and related compounds that were of any commercial drug or cosmetic significance. In addition, the supplier has performed man toxicity and irritation tests to prove the products are safe in normal use. In fact the suppliers staff has perfected a system of classifying and selecting emulsifiers by the HLB method representing the Hydrophile-Lipophile-Balance. This method enables one to determine the kind and amount of each emulsifier required—if you know in advance the percent emulsifier needed in the emulsion.

The Canadian Department of Munitions and Supplies recognized the value of these non-ionics in the following formula for penicillin ointment:

Span—60	10.4 Gm.
Span—80	2.0 Gm.
Tween 20	5.6 Gm.
Stearic Acid	20.0 Gm.
Distilled Water	138.0 cc.

Another ointment recently investigated as a base for antibiotics consisted of 25 percent G-1425 (solubilized lanolin) and 75 percent petrolatum.

Out of nine surface active agents tested by Dodd and co-workers, the non-ionic group consisting of Arlacel-C, Tween 60, glyceryl laurate and Carbowax were found non-irritating to human skin; the first three were tested for their effect on wound healing and found to "have little or no effect on the process of wound repair in rabbits".

The Tweens have been used to solubilize essential oils and other poorly water soluble medicaments. On an average, it takes from 2 to 5 times more Tween than of the oil to be solubilized. The mixture is water soluble. A thick, water soluble coal tar lotion according to Pflag and Zopf contains:

Crude coal tar	1 part
Tween 20	4 parts
Zinc oxide	16 parts
Glycerin	2 parts
Bentonite Magma	40 parts
Lime water, U.S.P. to make	100 parts

By increasing the bentonite, a solid paste-like ointment can be made. Better yet, a Span can be used along with the Tween to increase viscosity.

An example of an oil-in-water base that is similar to hydrous emulsifying ointment B.P. or U.S.P. hydrophilic ointment but is made with non-ionic material, follows:

NON-IONIC BASE, O/W

Stearyl alcohol	18 %
Petrolatum White	18 %
Glycerin	10 %
Tween 60	4.5 %
Water, to make	100 %

The proportion of water can be increased or decreased as is needed to adjust consistency.

Carbowax 4000	50 %
Polyethylene Glycol 400	40 %
Span 40	1 %
Water	9 %

The above formula is a heat stable composition suggested in the literature.

The U.S.P. XIV recognizes a mixture of liquid and solid polyethylene glycols in an ointment base

POLYETHYLENE GLYCOL OINTMENT U.S.P.

Polyethylene glycol 4000	50 parts
Polyethylene glycol 400	50 parts

A variant being considered for inclusion in the Canadian Formulary consists of the following materials:

Carbowax 4000	100 Gm.
Stearyl Alcohol	185 Gm.
Glycerin	150 Gm.
Sodium Lauryl Sulfate	5 Gm.
Water	450 Gm.

Canadian investigators Huston, Riedel, Murray and Groves found this formula best of 25 oil-in-water bases studied, including U.S.P. hydrophylic ointment and B.P. emulsifying ointment, particularly at extreme temperatures.

Summary

1. Ointment of wool alcohols B.P. requires modification if it is to be of any value as an hydrated ointment base. The addition of Arlacel-83 would give the emulsified base greater temperature stability.
2. Ointment of Rose Water U.S.P. while substantially better now, could stand more improvement. Its usefulness is limited by its alkaline character.
3. Cera Emulsificans, Emulsifying Ointment, both B.P. and Hydrophilic ointment U.S.P., because of their anionic surface active agent content, are greater sensitizers than the non-ionic or soap emulsions. They cannot be used with cationic germicides nor can they be used in ophthalmic ointments. They have a wide spectrum of compatibility.
4. Glyceryl monstearate, self-emulsifying, produces an excellent emulsified base but is limited somewhat in use by its alkaline character.
5. The non-ionic products like the Spans, Tweens, Carbowaxes and polyethylene glycols generally have less tendency to irritate skin, have good solubility for most medicaments, including poorly soluble antibiotics.

by DORLAND FREDERICK

Impressions of the

TORONTO INSTITUTE

THERE should be a more forceful word for it; "impressions" does not convey the full meaning of the crowded gallery of mental pictures of that eventful week.

Even the train ride from my home city was different. I was destined to make the trip in an ancient coach (natural air-conditioning) and enjoy my lunch in an equally ancient diner. At the end of the trip there was the long ride up Avenue Road in the brilliant June sunlight through typical Toronto traffic, past the memorials on the boulevard with their added ornaments of homeless men, sleeping. I smile now to think of the

trouble I had convincing the taxi driver that I wanted to register at Whitney Hall. He took me to a "frat house" first. . . . "Whitney Hall's for wimmen" he insisted.

The cool airway of Whitney Hall welcomed me with respite from the hot sunshine. From the east door the vista of the upper playing field with Hart House in the background brought back memories of long ago. There was no time for reminiscing, however. Irene Olynyk and Harold Hicks were waiting and I was introduced to a fellow pharmacist from New Mexico, another from New York and one from California. Then came registration. How pleasant my room in Cody House looked to me and how I enjoyed the hot bath. Then, over to Whitney Hall to meet some more "institutors."

Soon I was renewing acquaintances, making new friends, seeing Len Goudy looking hot and tired, Allen Beck as cool and unperturbed as ever. I met Jane Rogan of Detroit for the first time, and was much impressed. Len Goudy's dinner party at the Old Mill came next. Here nostalgic memories came crowding back to me. Our new friends liked it—from Cleveland, Boston, Alabama, New York, Ohio—all joined in the pleasure of congenial friends and good food. The perfect June evening provided incentive for a short drive around Toronto. Actually it lasted two full hours and we saw Toronto, including the Exhibition Grounds and Casa Loma flood-lighted. Then the quiet of Whitney, the whisper of a breeze in the elms, the fading swish of tires on the cooling pavement of Harbourd Street, then oblivion.

Monday A.M.

Seven o'clock on a Monday morning usually is too horrible to think about long. . . but not this Monday morning. Spurred on by the increasing roar of traffic about the Hall, with Hart House tower beckoning through the thinning mist of early morning, I walked with Perrin Statia to Bloor Street for breakfast. The stroll back to Hart House down Avenue Road and through the Park brought us into the thick of rush hour traffic. More new faces and smiling "old ones" at the registration in the Reading Room at Hart House, with Gloria Niemeyer hard at work at the first desk. Among the first to register were Sister Ancilla, Sister Avila and Sister Gerald, alert and ready for work armed with brief-cases, pens and a smile for old friends.

The first sessions, preceded by greetings, all a little formal and some-what stilted. Soon this gives way to the spontaneous feeling of "school-days" comradeship which was to prevail for the remainder of the Institute. The sunlight filtering through the high windows of the Great Hall added a solemn touch to the proceedings; later in the week they were to add much solar heat to the discussions. These same rays were dimmed frequently as Allen Beck went into action with his camera to record for posterity the faces of the speakers. The intense interest shown by all attending these opening sessions did not wane once during the week. This, in fact, is the predominating impression of the Institute—each one in that Hall was there for the purpose of learning all he or she could from each paper as it was presented by authors who were as enthusiastic as their audience. The wide variety of subject matter, the voluminous supply of material distributed (thanks in particular to Herbert Flack) by speakers, all made a lasting impression upon me.

Faculty Outstanding

The speakers themselves each left a distinct imprint on the memory. Dorothy Morgan came first, speaking quickly and with assurance, answering questions and being most helpful. Then Don Francke's slow, thoughtful delivery, the slight pause which caused one to hang upon his last word. The quick, sure enunciation of George Archambault and his repartee with T. Joseph Hogan. Doctor Walker of the Ontario College of Pharmacy, youthful and enthusiastic, his subject matter of interest to everyone. Professor Stocklosa's paper was received with interest and appreciation; one was sorry when he concluded. I remember Paul Bjerke for his quiet, forceful delivery, the modulated tones and the well-handled subject "Professional and Public Relations."

Maison G. deNavarre's discussion and slides were of special interest to me, and to others as well, judging by the questions he was required to answer after his presentation. Evlyn Gray Scott on the subject of ""Training of Pharmacy Interns" held the attention of the audience in spite of the unusual heat; her sparkling repartee and quick answers to questions from the floor brightened up the program. Then there was Herbert Flack; everyone will remember this man with his quick and positive presentation of his subjects, the army of retainers captained by Allen Beck, necessary to distribute his literature.

Doctors Darrow, Smith, Ferguson, Shields and Farquharson, all gave papers of timely interest, each one with some special detail to remember. I remember particularly Dr. Farquharson's unique paper on a very difficult subject. He spoke clearly and conversationally, using layman's language

and "pulling no punches." I heard many appreciative remarks following his presentation.

Dean Hughes and Doctor Purdum lived up to their high standards as teachers, delivering their papers with lecture-room precision and evident enjoyment.

The faculty throughout, representing all parts of United States and Canada, impressed me as being as vitally interested in the success of the Institute as did the registrants themselves. I realize now how fortunate I was in being able to attend such a carefully planned course of lectures.

In retrospect, the Institute meant many things to me. The warmth and spontaneous gaiety of "Canada Night" did much to break down barriers and kindle a feeling of fellowship. I like to feel that it set a precedent for future Institutes, as many participants expressed enjoyment of the informal atmosphere created.

A pleasing feature of the whole week, to me, was to be in such pleasant surroundings as provided by the campus, in the heart of Toronto yet not a part of it. Segregation of the group in this manner meant that we had time for group discussions, for talking shop or just visiting, and for myself I feel that I learned a great deal from these informal groups. One of the strongest impressions of the week that I retain is that of the unceasing desire for knowledge that permeated the group. Usually the opening words on meeting someone new were "What do you do in your hospital about this. . . " and then it was "Aunt Susie's Sewing Circle" for a time.

Perhaps the impression I like to remember best is that of an earnest group of people in the Great Hall with its vaulted roof far overhead, the sunlight streaming through the windows, the chirping of the sparrows or cooing of the pigeons drifting down in one of those inexplicable lulls that occur in meetings; the stirring martial music from massed bands which nearly upset the even tenor of one of our afternoon sessions, the click of some latecomer's heels as she hurried along the hallowed halls of Hart House enroute to our sessions; the ringing of the carillon on another afternoon, diverting our attention for a fleeting moment; the quietness of the mist-shrouded campus in early morning, glimpsed from dormitory windows as I began another day of the Institute; the friendliness and comradeship as I sat with others late in the evening under the stately elms in front of Whitney Hall. At such times I felt that all was well with our little world, and the twinkling stars in the cool void far above assured me it was so.

I am glad that I went to the Institute and I hope that you are, too.

DEVELOPMENT OF HOSPITAL PHARMACY IN

Great Britain

by HERBERT GRAINGER

Descendant of the Apothecary of the Middle Ages, the British hospital pharmacist has traveled a long road of progress to attain a high position on the medical care team. This account describes some of the factors influencing his progress and the author discusses the impact of historical developments and of the National Health Service.

IN ITS ESSENTIALS and broad outline the work of the pharmacist in hospitals must be similar in all countries; and on being honored by your invitation to address this Decennial Congress of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, I was faced with the serious problem of providing a discourse which would contain sufficient news and raise sufficient topics for discussion, either here or in private groups, to maintain your interest. I find myself in the position of the young minister who, when he asked what he should preach about, was told "Preach about God and preach about twenty minutes"—only in my case your secretary told me forty minutes.

It occurs to me that you will be interested not so much in the detail of day-to-day running of a hospital pharmacy as in the back-ground and outlook of your British colleagues. After all, the chief value in meetings of this kind is not so much in the intrinsic work of the factual information imparted as in the exchange of personalities and the feeling of unity of purpose and the exchange of ideas which are made possible. So I want to present to you a picture as comprehensive as I am able, of the British hospital pharmacist: his difficulties, hopes and ambitions at the present time and I want to take back to England some account of your outlook and difficulties—the points where we can learn from you and the points where we can stand firmly together recognizing a strong bond of fellowship in our common ideals.

History

In order to understand the development of the present day pharmacist in Britain we must take a glance backwards at the history of the profession. In the presence of so distinguished an historian as Dr. George Urdang I do this with the greatest trepidation and in the hope that he will adjust any errors or wrong emphases of which I may be guilty. The hospital pharmacist is a descendent of the Apothecary of the Middle Ages, whose craft was to provide medicinal substances for the use of the physician. It is true, of course, that the functions of the two professions overlapped and that the apothecary seems always to have been open to the temptation to diagnose disease and prescribe remedies, but in the main the function of the apothecary was clear enough: he collected his raw materials—plants, animal parts, minerals such as the famous Antimony of

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Westminster Hospital, 1939

Paracelsus—compounded them into medicines to the order of the physician. Thus the apothecary from the earliest times has been a combination of craftsman and merchant. Until the reign of James I (1617 A.D.) the Apothecaries were a subservient branch of the Guild of Pepperers (Grocers)—one of the most influential Guilds in the country, who controlled not only comestibles and spices but all imports of drugs as well. James I was a man of culture, keenly interested in the newly opening sciences and arts and under his patronage the Society of Apothecaries received a royal charter creating them an independent company and granting to them a monopoly in the practice of pharmacy. They were, however, precluded from practising medicine for gain, this being a monopoly of the London College of Physicians founded by Thomas Linacre in the reign of Henry VIII (1518). However, the temptation to practice medicine was too great and the law was circumvented by the practice of the apothecaries of charging no fee for consultation, but amply recouping in the exorbitant charges they made for the drugs they supplied. Some recent reviewers have seen in this practice the origin of the present-day association of the "doctor and the bottle of medicine." For generations, until the Health Service, the general practitioner in England has provided the traditional bottle of medicine and it is expected by the patient that he will do so: he feels he has not had adequate treatment without it. Recent anxiety over the economics of the Health Service is closely associated with this habit—though of course the habit is by no means new.

This incursion of the apothecary was fiercely resented by the physicians, but with little success. The Great Plague (1664-1666) created a demand for medical attention far beyond the capacity of the regular physicians, and the apothecaries, who by now had established themselves in the public view as practitioners of the medical art, were in very great demand. Their method of remuneration, however, remained the same until in the Medical Act of 1852, they were authorized to practise as doctors. One of the ways in which the physicians attempted to oppose the growing strength of the apothecaries was by a counter offensive. They opened a Dispensary in London (1697) to which patients could bring physicians' prescriptions and have them dispensed by trained "dispensers" holding licence under the College. The fees charged were strictly according to a "time and labor" tariff and were much less than

those charged by the apothecaries. The experiment failed after a few years and the "dispensers" began to keep open shop— often in association with the "Druggists" who dealt in crude drugs and galenicals. Thus a third faculty came into the public service. They in turn were fiercely opposed by the apothecaries—especially by those who had remained predominantly in the pharmaceutical craft and had not extensively taken up medical practise. But in spite of many fierce onslaughts they continued under various titles such as Chymist, Dispensing Chemist, Chemist and Druggist, etc., until eventually in 1841 largely by the energies of Jacob Bell and William Hanbury, they obtained a Royal Charter from Queen Victoria and formed the Pharmaceutical Society of Great Britain.

This transition from apothecary to doctor did not take place on the continent of Europe to any great extent and the tradition of the apothecary remains to this day in the German and Swiss Apotheker and in the French Pharmacien. The break in the tradition in Britian has meant that a new body of practitioners has grown up in the last 150 years much more closely allied to retail trade than to academic study and this dual role of merchant and professional man has been a characteristic of pharmacists—often to their disadvantage. One must say, however, that the founders of the Pharmaceutical Society were keenly conscious of the need for scientific study and had among their number many distinguished men whose names are to be found in the list of Fellows of the Royal Society. The Pharmaceutical Society opened the first laboratory in England for the public teaching of chemistry—the laboratory is still in existence at 17 Bloomsbury Square. Also established in 1920 was the first Nutritional Laboratory for Vitamin Assays. Nevertheless the majority of the members had their main interest in commerce and in the eyes of the public were mainly shopkeepers, albeit of a rather special kind. It is only in the last 25 to 50 years that pharmacy has gradually recovered something of its academic standing and become established in the universities. Today, it holds a proud position in many of our universities and is often the most highly developed and coveted department in our colleges of Technology (Two Systems—The Degree and the Ph.C.).

Hospitals

So far we have been looking very rapidly over a complicated story of the development of the pharmacist generally. Now let us turn to the hospitals and see how the story fits into developments there. During the Middle Ages the few hospitals which existed were charitable institutions organised by the Church. Venerable institutions such as St. Batholomew's in the City of London and St. Thomas' in Westminster are direct descendents of the old hospitals of the monasteries. There were also the infirmaries established under the Poor Laws of Queen Elizabeth I and controlled by Boards of Guardians. These, however, were not so much for the purpose of medical treatment of the sick as places for the care of the aged and destitute. Medical treatment was not so highly developed as to require special places for treatment and most treatments were carried out in the home.

The middle of the 17th century, however, saw the devastations of the Great Plague which spread out from London to many surrounding towns and cities and which was probably cleared by the merciless fire of London in 1666. The havoc wrought in those years focussed attention on the need for medical care, especially among the poor, and by the turn of the century many small hospitals had been opened by private benefactors. They have now largely disappeared. Prior to this the only public hospitals were St. Thomas' and Barts. In 1719 a group of well-disposed persons, some merchants (Hoare the Banker), some medical men, some ministers of religion, including the uncle of John Wesley, collected money to provide such a hospital in the city of Westminster. It was the first "public subscription" hospital of its kind and set the pattern for many others such as St. George's and the Royal Free Hospital in London, and others in provincial cities such as the Royal Infirmary at Manchester and the General Infirmary at Leeds which came in the next few generations. (Westminster Sanctuary—unhealthy socially and physically. Dregs of Society, etc., fever, malaria, rheumatics etc.,).

One of the first permanent officers to be appointed at the Westminster was the apothecary. His duties, according to the Minute Book of the time were clearly pharmaceutical in character. He was required to prepare a list of medicaments and obtain them "at best hand" from the apothecaries of the town and compound them according to the physicians' prescriptions. The temptation to a little esoteric improvisation is reflected in the frequent injunctions which appear in the Minutes emphasising that he may supply drugs only in and according to the physicians' prescriptions. The apothecary had his shop in the hospital. He was resident and was allowed to take private pupils for fees—a right, incidentally, which appears to have been exercised until my immediate predecessor's time and which has ceased largely

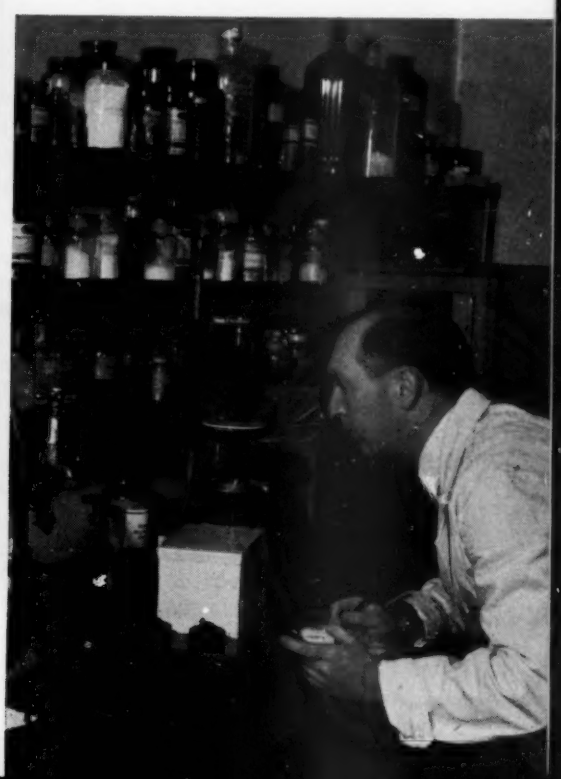
as a result of the changes in the educational system in England and in English pharmacy in particular. A number of amusing entries appear in the Minutes regarding the apothecary—one to the effect that a porter should be appointed to record the times at which the apothecary left and returned to the hospital. He was expected to be in not later than 10 o'clock at night. With the changes in the function of the apothecary outlined above, a similar change gradually appeared in the hospital apothecary's duties. He became a sort of medical registrar responsible for reviewing the bed-state and listing patients he thought had remained overlong so that the physicians at their next visit might consider their discharge. In the absence of the secretary to the Board, he was responsible for the general administration of the hospital and at a later date, when the use of anesthetics had begun, he became anesthetist as well. Indeed, a veritable "Poo-Bah." It is clear that the physicians regarded this development with some misgiving and there are frequent attempts to restrict the duties of the apothecary to those of providing medicaments. However, during the 19th century the actual compounding had been relegated to assistants called "dispensers" and by 1876 the post of apothecary was considered redundant. Two junior house-doctors were appointed in his place—one to administer anesthetics and the other to deal with casualties. The "senior dispenser" was in charge of the Dispensary and the Minute Book records that he must be either a licentiate of the Society of Apothecaries or a member of the Pharmaceutical Society.

Hospital Pharmacist

One A. E. Tanner was appointed as pharmacist to the hospital in 1886. He was the first to be so designated and the title has remained since. Tanner was an Examiner for the Pharmaceutical Society. At about the same time similar changes occurred in the other teaching hospitals. Edmund White who rendered yeoman service to the Pharmaceutical Society was the first pharmacist of that title at St. Thomas' and followed a long line of apothecaries who had followed father and son for over a hundred years; the last was Sidney Plowman F.R.C.S., who retired in 1889. Thus it will be seen that the hospital pharmacist has followed the apothecaries, tradition more closely than has his colleague in retail practise and it has generally been considered that he enjoyed a somewhat more exalted status in the profession. Unfortunately, there was no general legal requirement that hospitals must employ a "dispenser" qualified by membership of the Pharmaceutical Society. Many of the hospitals were severely handicapped by financial difficulties and, for this and other reasons, appointed dispensers who

LEFT: *A corner of the Manufacturing Laborat Westminster Hospital.*

BELOW: *Chief Pharmacist Herbert Grainger che controls.*



had no training other than that acquired in apprenticeship. The Pharmaceutical Society was made up mainly of retail pharmacists and the legislation they obtained was almost entirely directed to regulating that branch of the profession, so that the gradual removal of the unqualified and unregistered practitioners in retail pharmacy was not followed in hospitals. To this day, some of the hospitals, especially those which grew out of the old poor-law infirmaries, are staffed by dispensers holding no qualification registrable by the Pharmaceutical Society.

Inter-War Conditions

This has been a weakness in establishing a satisfactory status for hospital pharmacists in modern times. For reasons explained above, the pharmacist in the teaching hospitals have enjoyed a good status, but those in the non-teaching hospitals and more particularly in the old local government establishments, have often been confused and even on occasions replaced by unqualified personnel. The very low remuneration offered by many of these establishments in the inter-war years resulted in a shortage of highly qualified men, and produced a sense of inferiority which has bedeviled us until only quite recently. Since the war there has been a rapid improvement. Mainly as a result of the activities of the Guild of Public Pharmacists, salaries have been brought somewhere nearer to a fairly comparable level with those of other professions and a better outlook prevails as to the future. There are about 1500 of us, which is small in comparison with the total register of 25,000 pharmacists. However, the Council of the Pharmaceutical Society has been generous in the interest and support it has given us and I am an optimist so far as the future is concerned. The National Health Service Act has brought all hospitals under government control and many of the difficulties of raising standards to a common minimal level have disappeared, though post-war conditions have delayed many of the improvements we still hope for.

Hospitals Under The National Health Service

It may be convenient at this point to look briefly at the structure of the Health Service (so far as hospitals are concerned) and see where pharmacy fits into it. Throughout the country were set up a number of regional hospital boards (Under the Health Service Act). Their areas were designed so that they were centered on the main teaching centers and they did not coincide with the country—council or local government areas. The function of these Boards is to exercise general supervision of the hospital services in their area, to co-ordinate their work and arrange for a suitable geographical distribution of facilities, *e.g.* surgical specialists, radium and x-ray, physiotherapy, etc. They are responsible for engaging professional personnel for the service and allocating funds to the individual hospitals. The teaching hospitals, however, (i.e. those concerned with the teaching of undergraduate medical students) come outside the purview of the Regional Board and are governed by Boards of Governors appointed by and directly responsible to the Minister of Health. This arrangement gives to the teaching hospitals a much greater degree of autonomy than exists in the non-teaching hospitals. The latter are managed by a "Hospital Management Committee" which may have a group of associated hospitals under its care. It is responsible for the day to day running of the hospital, recommends the purchasing of new equipment, etc., and makes a budget.

The hospitals at the time of the introduction of the Act, varied enormously in scope, efficiency, tradition and almost every conceivable way. Their welding into one co-ordinated system is a long and difficult operation which, as yet, is by no means complete. On the whole, the voluntary hospitals, *i.e.*, those run by private benefactors and public subscription, were the best equipped and more desirable hospitals. They had a tradition of autonomy and because of the precarious nature of their income, an eye to economy. The hospitals owned by town councils and other local government bodies, on the other hand, had developed from the Poor Law Institutions after the 1920 Act. Some progressive cities like Birmingham and Leeds had, nevertheless, made an extraordinarily good job of them, but in the main they were still suffering from the "pauper" stigma. They were out of touch with the teaching centers and were dependent on a vote of money from the local rates—thus becoming (sometimes) susceptible to petty political intrigue, etc. The work of the past few years has been to wed these two systems and bring out what was best in each and give financial security to all of them. Some of us think that the local government type of approach, with its committees and remote control, has played too big a part in the minds of the administrators to the loss of the spirit of independence and local pride. There can be little doubt, however, that after a short honeymoon period in which there was some extravagance and pushing for places, the hospitals are settling down into a much more efficient and useful system than ever

before. As the country's economy permits, the services provided will be extended probably through local health centers. I am confident that we offer to all sections of the community, irrespective of rank or profession, hospital facilities of a very high order.

Modern Hospital Pharmacist

How does the pharmacist fit into the picture I have attempted to draw? Most of my time has been spent in teaching hospitals so I can speak best from that background. The pharmacist is a "Head of Department." In this his status as an administrator is comparable to that of the finance officer, the steward or supplies officer, the Matron, the Catering officer, etc. He is also, by virtue of his training and profession, regarded as a professional colleague by the medical men. He thus holds a dual role and in some sense a dual loyalty. Fortunately it is rare for the two to be in conflict though such a situation can arise. This unique position puts into the hands of the pharmacist a great deal of influence and makes his work very wide in its scope. The pharmacist in the teaching hospital is usually expected to give lectures and practical instruction in pharmacy to medical students. In my own case this amounts to ten lectures and four half-day practical sessions for each student. Some of us give regular courses in pharmacology and therapeutics for the nurses. Thus the pharmacist can be regarded as

(a) Administrator and economics officer
(b) Academic teacher
(c) Technical and scientific officer.

In the non-teaching hospitals the responsibilities may be somewhat more restricted according to the size and character of the hospital. In many the pharmacist has no teaching duties; in some he lectures nurses.

Many hospitals, since the new Act, have appointed Supplies officers who are responsible for arranging all the purchases including pharmaceutical supplies. This has led to a great deal of bad feeling and has necessitated the intervention of the Ministry of Health in order to clarify the pharmacists' position which was in jeopardy of becoming a mere dispenser subordinate to a layman for the purchase even of the materials in which the pharmacist alone is a specialist. This has now been cleared by the statement made by the Ministry that the pharmacist must be consulted and his advice taken on purchases of pharmaceutical supplies. In the smaller hospitals the pharmacist has little or no scope for technical research and is fully occupied in carrying out the routine duties of dispensing and preparing his "stocks."

Queen Elizabeth Hospital, Birmingham, England

Manufacturing In Hospital Pharmacies

An aspect of hospital pharmacy which may represent a slight difference between us is that of the extent to which manufacturing is undertaken. In the larger teaching hospitals and some of the non-teaching hospitals a considerable amount of our requirements are manufactured on the spot. Many compress their own tablets; most prepare their own sterile products for injection. Mills for medium-scale manufacture of ointments and emulsions are quite common. It has been in the past, a common belief that the pharmacist should aim at self-sufficiency. It has not always been the case that the economics of manufacturing have been sufficiently scrutinised and often professional pride or the craftsman's desire to create have played a large part in determining the degree to which it carried on.

Group Administration

Now that the hospitals have been brought under uniform control and are administered on a group basis, it is my belief that pharmaceutical services must very soon also be remodeled on this basis. Thus, instead of each hospital attempting to be self-sufficient in its manufactures, often in unsuitable premises and with poor equipment, the group should be developed. The most suitable pharmacy should be built up to act as a central laboratory for the others: according to circumstances, one hospital might specialise in injectible materials, another in ointments, emulsions or whatever be suitable. Such centralisation would give greater scope for technical development and throw up more topics for minor researches. It would also be more economical in man-power since many of the routine operations could be performed by technical assistants under the supervision of a pharmacist.

The whole economic basis of manufacturing needs revision for other reasons too. We are all aware of the tendency to move away from the

old traditional materia medica. The bottle of mixture, and the ointments, suppositories, pills, etc., are rapidly giving place to antibiotics, highly specialised chemicals such as the antihistamines or the curarising compounds which are the products of the manufacturing chemist and come into the hands of the pharmacist as finished products. The standardisation of formulae for many tableted materials makes their production in the factory so cheap that it is often far cheaper to buy them on contract than to attempt to make them in hospital batches.

I have begun to feel, in recent years, that the hospital pharmacist should be turning more to analysis and quality control rather than to production, at least in some fields of manufacture. The great exception I would make to this is in the field of injectible solutions. Parenteral therapy has developed very rapidly in the last two or three decades. My hospital is the newest in London. It was opened in 1939 only a few months before the outbreak of war. Yet the laboratory then provided and believed to be eminently satisfactory for producing sterile products is much too small and is at present being replaced by one three times its size. It is, of course, possible to purchase on contract many of the fluids required and some of the smaller hospitals are obliged by lack of laboratory facilities to do this. But my experience indicates that the optimum conditions for producing such fluids is in the hospital or hospital group providing service for about 1000 general beds. At this size, the turn-over of stock is rapid enough to ensure that batches are not stored for long periods, the number of personnel involved is small enough to be efficiently supervised by one pharmacist and inspection of the finished product can be carried out with care on each item. Where bacteriological control is required this can be done either in the Pharmacy itself or (in my opinion more desirable) by the bacteriologist to the hospital who issues an independent certificate. As an example of the result in terms of cash value, I reckon that by manufacturing injections for 450 beds the net saving (after allowing for overhead costs etc.) is in the region of £5000 ($12,500). If any one is interested in the details, I have them here. Moreover, we claim that our products are in quality and in elegance in no way inferior to the products of the manufacturing houses.

Facilities for manufacturing offers the hospital pharmacist greater opportunities for research and teaching. Thus, he broadens the scope of his activities becoming an even more important link on the medical care team.

Advantage of Special Facilities

Tableting and galenical manufacture do not offer the same scope for economics. It is possible, I think, to "break even" on costs with contract prices. The value of such manufacturing, however, lies not so much in the monetary savings it brings, as in the flexibility it gives to the department and the opportunities for teaching pharmaceutical apprentices and students and in the throwing up of research problems. For example, flexibility is important in a hospital where there is a vigorous research program. A new compound may be devised by the biochemist, or in collaboration with a manufacturing house. It is necessary to produce the material as injection or tablets, etc. and at the same time produce "blanks" for control which are indistinguishable to the clinician and patient. It is usual when such a situation arises to ask the pharmacist to exercise his art and to keep record of where "genuine" and "control" material has been issued. It was by this method that we were able in Westminster to discredit the "Ascorbic Acid and D.O.C.A." treatment for rheumatoid arthritis. In a disease such as rheumatoid arthritis the "psychological overlay" is very pronounced and it is necessary to carry out a large number of controls in conditions indistinguishable to all but the supplier of the medicament. We have in the Westminster Hospital a team working on the rheumatoid diseases and we have screened a number of drugs by collaboration between the pharmacist and the physician. Even the nurses and the doctors themselves were unaware which patient was receiving the genuine material and which the blank. Subsequent correlation with clinical improvement and objective changes such as reduction of swelling, restoration of E.S.R., etc., gave valuable information as to which compounds were useful.

Without facilities for tableting and for production of sterile injectible materials etc., such collaboration becomes impossible.

Quality Control And Research

The importance of maintaining a small analytical laboratory cannot be over-emphasised. First, it is necessary to carry out control analysis

General View of Dispensary, Westminster Hospital

on drugs supplied. We do not attempt to analyse all incoming goods as a matter of routine, but there are occasions when it must be done. For example, we prepare our own tincture of opium etc., from raw opium. An assay of the morphine content is necessary at the time of purchasing the opium and, of course, on the finished material. Again, with other vegetable drugs such as belladonna leaf or colchicum corm.

From time to time it is important to check the distilled water from the stills. Sometimes there is doubt as to the quality of goods received on contract, *e.g.* the chlorine content of concentrated hypochlorite materials. One could go on at length to cite similar instances. The existence of such a laboratory opens other possibilities of service to the hospital. For example, the arbitration of quality in domestic goods—cleaning materials such as soaps, scouring powders, etc., purchased by other departments. It is often possible for the pharmacist to affect economies in the hospital by offering alternatives to some of the commercial preparations available or to devise entirely new ones.

A flow of work of this kind through the department throws up sufficient problems to keep even the most intrepid and energetic hospital pharmacist with more research items on his list than he can hope to cover. Some of the topics we have been engaged on in recent times include:—

I CHANGES ON HEATING DEXTROSE

The investigation of the changes occurring when dextrose-saline is heated in an autoclave. I do not propose to read you a research paper on this. But briefly this is the position. From time to time, perhaps once in a year, we have a crop of complaints that there is a high incidence of venous thrombosis following intravenous drip therapy. The contributory factors are many, *e.g.* technic of insertion of canula, type of canula used, the rubber (or other tubing) in the apparatus, the condition of the patient, the temperature and humidity of the atmosphere etc. But usually the clinician is tempted to overlook all these and go straight for the fluid, suspecting that it is either chemically irritant or bacteriologically infected. I am satisfied from investigations carried out at Westminster which have been corroborated by experiments still proceeding in another hospital that the changes which take place on autoclaving the dextrose have very little to do with the thrombosis. We have found, however, that there is a great variation in the quality of the rubber used for tubing and this is receiving the attention of the Medical Research Council and the British Standards Institution. One of the chief difficulties is the difficulty of obtaining accurate and reliable information from some of the rubber technologists.

II ALTERNATIVES FOR COTTON

Another project has been the study of *alternatives to cotton for surgical dressings.* I imagine that to a nation so cotton-conscious as America this must sound a little bizarre. You must know, of course, that as a direct result of the war, Britain is faced with an economic problem of a kind never before experienced. Instead of being a great creditor nation we are now a debtor nation because almost the whole of our overseas assets which in pre-war years brought in revenue from overseas, had to be liquidated to finance the war. Even then it would have been impossible to continue without the magnanimous aid afforded by this country. The political changes which have occurred in the international sphere instead of enabling us to regain a satisfactory equilibrium have worsened and we are today carrying a load in the shape of a rearmament and defence program which, in relation to the production capacity of the country is the highest in the world. This means that every method of reducing our overseas spending has to be carefully scrutinised. For this reason products which can be made at home are of the utmost importance. Further, should a conflict break out, the question of our dependence on shipping for maintaining our supplies will be more acute than ever. For this reason alternatives are being sought for a number of materials including cotton. Rayon is obviously of interest here. Rayons have been highly developed as textiles for apparel, but it is only recently that they have been offered as alternatives for surgical dressings. A number of hospital pharmacists, including myself, have had the opportunity for examining them. The rayon fiber, unlike cotton is solid—it has no central lumen. The absorbency of the fabric therefore depends entirely on capillarity. When spun and woven into gauze or lint, the rayon has an appearance very similar to that of cotton. But in texture is much softer. In absorbency it compares well with cotton. It can be sterilised by heating at 150°C. in dry air or at 115°C. in an autoclave without undue loss of tensile strength or discoloration. Its disadvantages are that it shrinks on wetting and is therefore not recommended for bandages, and some samples of lint shed fibers easily, the fiber being more brittle than that of cotton. This may be a disadvantage where the fabric is to be used in an open wound. At present the materials are being produced on almost an experimental scale and the prices are so closely similar to those of cotton that there is no economic advantage in the narrow sense. The matter may become important in the future.

I have quoted these two topics as an indication of the variety of minor research problems which come into the purview of the hospital pharmacist. I think the moral to be drawn is that the training of the pharmacist must always be on a wide basis so that he can handle problems coming from a multifarious field. By all means let us train specialists in pharmaceutical chemistry, bacteriology, pharmacology etc., but let that be a post graduate training superimposed on the very broad field of knowledge we have come to associate with pharmacy. I know of no professional training which introduces to its practitioners such a wide range of materials and techniques.

Teaching

Finally, I would like to say a word about teaching. The hospital pharmacist does not normally take part in the academic teaching of pharmacy students. The only point at which he has any opportunity of training pharmacists is during the precollegiate apprenticeship or in the postgraduate year of practical training. As only a small number of students carry out this part of their training in hospitals and then only one or two in any given hospital, the opportunities of the hospital pharmacist are limited. I regard this as a weakness which should be corrected. Too wide a gulf between the fulltime teachers engaged in the work of the colleges and those engaged in the day to day practical work of pharmacy tends to give to the teachers a warped perspective. There is the danger of over-specialisation in those subjects which offer high academic reward and a neglect of the less spectacular, though equally important chores we all know so well. This tends to produce a less flexible and adaptable pharmacist than would be the case if a closer liaison could be made between the two branches.

The hospital pharmacist, however, is called upon to instruct medical students in the elements of pharmacy. The degree to which this is carried out varies considerably from hospital to hospital. Recently the Board of Studies in Pharmacy in the University of London issued a curriculum which is being followed (approximately) in most of the medical schools in London. It is designed with the object of encouraging intelligent prescribing and promoting collaboration between doctor and pharmacist rather than being an attempt to produce a competent dispenser in twelve easy lessons. In some universities this aspect of the medical students' training is undertaken by the Professor of Pharmacy or one of his lecturers from the Faculty of Pharmacy. In my view this is unfortunate. The medical student is far more interested in actions and uses and clinical indications of the materials he is handling and the hospital pharmacist, placed as he is in a focal position in the hospital can and should wean into his curriculum a great deal of therapeutics and pharmacology. His continued close contact with the students when they come into the hospital as house-officers provides a fruitful opportunity for further collaboration. In my own hospital it is quite common for groups of students approaching their examinations to request a set of tutorials in "Materia Medica" from the pharmacist. This close link-up is not so easy if in his early clinical years the student has received his instruction in pharmacy from the teachers in the Faculty rather than from the practical man on the job.

Conclusion

This review of the status of the pharmacist in a British Hospital is, I am well aware, strongly tinged with my own personal views. Another man may have made other emphases. But in its main outline, I feel sure I have put the position of the teaching-hospital pharmacist. The pharmacist in non-teaching hospitals is not much different. My non-teaching colleagues are a hard-working lot and where they do not achieve perhaps so congenial a department and circumstance as the teaching-pharmacist, this is due to a great degree to the history and background of their hospitals, the smallness of their departments which they have as yet been unable to build up to cover all the services we would like to see. But events are moving in the right direction and I am in no way pessimistic that hospital pharmacy will remain the most satisfying branch of the profession to those who enter it.

We are aware, of course, that the status and functions of the hospital pharmacist vary from country to country. The work of the Federation Internationale Pharmaceutique is designed to enable us to "build each other up," to learn from one another and mutually raise our standards so that there can be true international understanding. I am glad that in recent times the Federation has turned its attention to hospital pharmacy as a special branch and I trust that through its good offices the link which has been made this week will long continue to our mutual advantage.

I am deeply grateful to you for your very kind invitation to address you and your great courtesy in the attention you have given me.

It's your organization and mine

by SISTER M. THEODORA O.S.F.

. . .Whereas the advancement of pharmaceutical knowledge and the elevation of the professional character of apothecaries and druggists throughout the United States are dear to us. . . . We, the members of a convention now met in Philadelphia, October 1852, composed of apothecaries and druggists from different sections of the Union, and from all the Colleges and Societies therein existing. . . do hereby resolve and constitute ourselves into a permanent association to meet annually . . . This Association shall be called 'The American Pharmaceutical Association'.

The apothecaries and druggists who made this resolution in 1852, could not have seen, except with prophetic eyes, that their "permanent organization" would endure for 100 years, and that in 1952 their successors, with the selfsame ideals and firm purpose of advancing these ideals, would meet in Philadelphia, and again pledge their hearts and hands, their time and talents toward "the advancement of the pharmaceutical knowledge and the elevation of the professional character of pharmacists throughout the United States."

The A.Ph.A. is essentially, an organization of individual pharmacists, from whatever specialized field of occupation—retail, government, hospital, research, teaching, or manufacturing. The Sister Pharmacists here present may have a justifiable pride in being members of a respected professional organization. It means that they are joined with thousands of fellow-pharmacists over the U. S. into one common group that have, basically, the same ideals, the same problems, the same educational background, the same heritage of the great men who have gone before in the A.Ph.A. There is the assurance that they need to only voice their needs and fellow members from any part of the U. S. will be willing to help with their knowledge or experience as the case may be.

As President Truman said in his letter of congratulations to A.Ph.A. President Don Francke, "Any organization which has been in continuous existence for a whole century has established itself as essential to the progress of the field of endeavor in which it functions." One needs only call to mind the big issues of the past few years (socialized medicine, the placing of pharmacists in government positions, and giving of commissions in the armed forces, the Durham-Humphrey Act, and Fair Trade rulings) to realize just how important the A.Ph.A. has been, nationally, in presenting the united action and opinion of pharmacists all over the country. Since the A.Ph.A. is the only organization open to *all* pharmacists, without exception, it is the one organization that can help its members to meet and cope with sectional and individual problems.

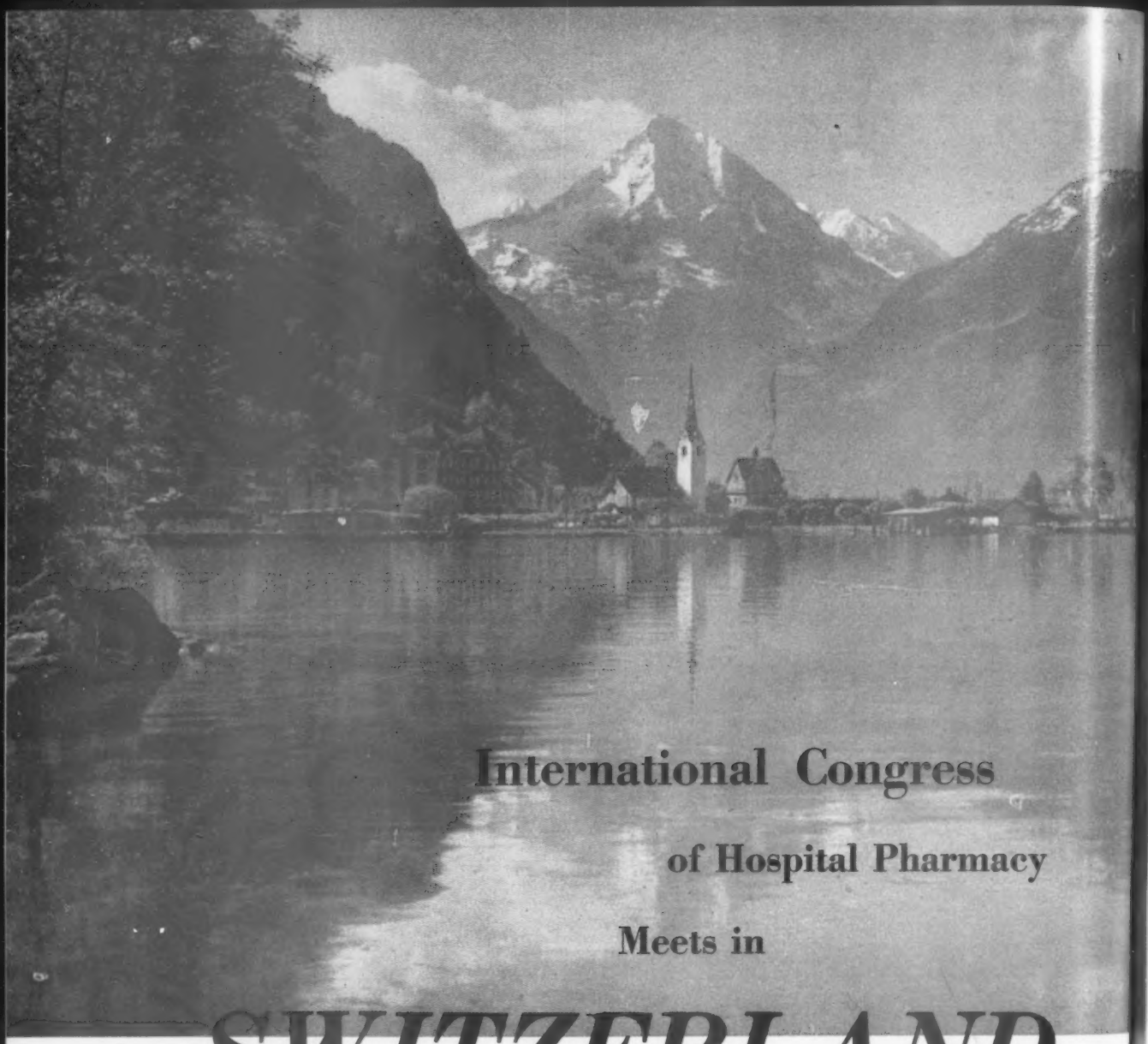
Our own association, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, is proof of this statement. When the hospital pharmacists realized that they were not getting their problems solved properly in the parent organization, they began to take steps to organize in such a way that their needs would get attention. Under the wise leadership of hospital pharmacists and of officers of the A.Ph.A., the ASHP was organized as a branch of the parent group. It has progressed in ten years to an organization of closely knit members, which is second to none in pharmacy.

Time does not permit to go into detail in regard to the birth, growth, and development of our organization. But this is not necessary. The excellent Decennial Issue of THE BULLETIN gives all of the details in a most interesting story.

We should all make it a point, or a project to read this history, first, to give us an appreciation of the work of those who started the SOCIETY, those who guided its first steps, both from within and from the parent organization; and secondly, to stir ourselves to action whenever we see or hear that our organization needs or could use our talents. We have such throbbing examples of men and women who did, and are still sacrificing time, and facing contradiction and disappointment in order to work for the good of hospital pharmacy. Let us hold ourselves ready to answer any call of our SOCIETY for the betterment of pharmacy in the American hospitals, or pharmacy in general. Others hold the torch aloft now, . . . who knows when we will be asked to relieve them and keep it burning brightly before our colleagues? Remember—it is YOUR ORGANIZATION AND MINE.

SISTER M. THEODORA is secretary of the Midwest Association of Sister Pharmacists and pharmacist at St. Joseph's Hospital, Joliet, Ill.

Presented at the September Meeting of the Midwest Association of Sister Pharmacists in commemoration of the Centennial of the American Pharmaceutical Association.



International Congress of Hospital Pharmacy Meets in SWITZERLAND

President Grover Bowles headed ASHP Delegation

MORE THAN 200 DELEGATES representing 20 countries met in Basle, Switzerland for the International Congress on Hospital Pharmacy, September 17-19, 1952. This was probably the first time in history that hospital pharmacists from such widely scattered parts of the world—European countries; Lebanon; South Africa; Canada; and the United States—met together to discuss mutual problems and make plans for co-operation on an international basis.

Representing the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS at the Congress was a delegation of five members headed by President Grover C. Bowles. Other members were I. Thomas Reamer, a past president of the SOCIETY and chief pharmacist

General Assembly of the Congress

AT HEAD OF TABLE:
Bowles, Reamer, Busick

Jacqueline Claus

Kurt Stei

at Duke Hospital, Durham, N. C.; Claude Busick, chief pharmacist at St. Joseph's Home and Hospital, Stockton, Calif. and an active member of the Northern California Chapter of the ASHP; Miss Jean Whitmore, formerly a staff pharmacist at Jackson Memorial Hospital, Miami, Fla.; and Miss Jacqueline Claus, formerly chief pharmacist at The James Walker Memorial Hospital, Wilmington, N. C. and a native of Paris. The entire group actively participated in the Congress with Miss Claus acting as interpreter since many of the papers were presented in French and German.

An International Organization

This Congress of Hospital Pharmacists was called in Basle at the invitation of the Swiss Society of Hospital and Military Pharmacists in order to further international cooperation among hospital pharmacists, a step which was initiated by the International Pharmaceutical Federation in 1951. The Basle Congress was organized under the leadership of Dr. Kurt Steiger, chief pharmacist of the Kantonsapotheke of Zurich.

The next international meeting of hospital pharmacists will be held in Paris in September 1953. Here the hospital pharmacists will meet with the International Pharmaceutical Federation (Federation Internationale Pharmaceutique) and form a formal section of the Federation which will thus automatically provide for future international meetings of hospital pharmacists. Further information concerning the Paris meeting as well as the British Pharmaceutical Conference which will be held earlier in September will appear in future issues of THE BULLETIN.

The Program

Delegates arriving in Basle on September 16 were met by Dr. and Mrs. Steiger who officially registered them for the Congress, and assigned them to hotels. That evening at an unofficial meeting of delegates to the Congress, there was an opportunity to meet hospital pharmacists from widely scattered areas and representing thousands of practitioners in this specialty.

Opening of the Congress at the University of Basle on September 17 was most impressive with the Drummers of Basle officially calling the group to attention and Dr. Kurt Steiger, already well-known to the U. S. delegation, presiding. The Drummers also performed at the final banquet and it was later learned that the Drummers are to the Swiss what a band is to the Americans. Also playing an active role in the Congress was Mr. Herbert Grainger from London who was present at the Decennial meeting of the ASHP. Greetings were brought from the various officials in pharmacy in Switzerland. Among those welcoming the hospital pharmacists was Dr. George Marti, president of the Swiss Pharmaceutical Society, who spoke of the problems facing pharmacy in the Federation and of the need for unity.

During the two-day Congress, a number of papers were presented including one by an ASHP member, Herbert L. Flack. His paper entitled "Manufacturing of Parenteral Solutions" was briefed in French by Miss Jacqueline Claus and in English by Herbert Grainger.

The papers presented were indicative of the broad and varied interests of hospital pharmacists practicing in different countries. Papers were given in both German and French and in some

cases, Italian. Abstracts were available in German, French and English. Some of the subjects covered, along with brief abstracts if available, are included below:

A Comparative Study of Hospital Pharmacy in Eight Countries, by Dr. Jean Cheymol, chief pharmacist, Tenon Hospital, Paris, France.

Here a summary of hospital pharmacy organization in eight countries—Austria, Belgium, France, Great Britain, Italy, Sweden, Switzerland and the United States—is presented. Type of ownership, responsibility of the pharmacist, requirements, training, etc. in the different countries is covered. Of American Pharmacy, the author says "Our American colleagues deserve our congratulation for the fine syndical organization."

Special Duties of the Hospital Pharmacists by Dr. Kurt Kuntze, chief apothecary, Rostock, Germany.

The author points out the opportunities for the hospital pharmacist to teach pharmacy students, medical students and nursing personnel. Subjects he is well fitted to instruct might include chemistry, pharmacology and prescription writing.

The Stability of Drugs with Reference to the Storing of Galenicals in the Hospital Pharmacy by Dr. Svend A. Schou, Copenhagen, Denmark.

The necessity of a practicable definition for the concept of stability is pointed out as the basis for the general specifications for the stability of drugs and in particular for the stability of galenicals. The author discussed the most important factors which influence the stability of galenicals giving illustrations of results from his and his coworkers' experiments on the problems. He suggests the problems in the field of stability which need investigations pointing out that this is a task of the hospital pharmacist since he should be a specialist in all questions in connection with the stability of drugs and the storing of galenicals.

Blood Constituents in Wound Healing by Dr. M. Allgower, Basle, Switzerland.

Methods to study the cellular elements of granulating tissue and of epithelial sheets in the animal and tissue culture were demonstrated. While it has not been possible to find a drug which will stimulate wound healing in the proper sense of the term it appears from our experiments that one can create local conditions which give an optimal medium for the cellular elements. In tissue culture one frequently uses plasma media which are rendered bacteriostatic by the presence of small amounts of antibiotics not toxic to the animal cell. Starting from this, two main applications for clinical use have been shown to give the wound a good chance producing granulating tissue and epithelial sheet. A series of clinical cases were demonstrated.

The Production of Different Blood Applications by Dr. H. Lehmann, Basel, Switzerland.

Citrated human plasma, citrated bovine plasma, plasma with leucocytes, isolated red cells and citrated human blood have been tested. Citrated blood, recalcified before use have been found to be most effective, but the application proved to be very tedious. It was therefore felt necessary to produce a jelly as different kinds of fatty creams would not stick to the surface of the wound. Tragacanth, kaolin, methyl cellulose, sodium carboxymethyl cellulose and agar have been tried and the latter found most suitable. Production of the agar-blood jelly was demonstrated and bacteriological tests as well as storage methods discussed.

The Hospital Pharmacist in His Function As Director of the Clinico-Chemical Laboratory by Dr. M. Guillot, Paris, France.

The author covers the role of the hospital pharmacist as supervisor of the clinico-chemical laboratory as practiced in France. Organization of the pharmaceutical service in a hospital with 1,000 beds is outlined along with specific work carried out and necessary personnel.

Coating Medicine Bottles with Silicones by Dr. A. Schmitt, Mannheim, Germany.

Application of the silicones as a coating for glass is discussed. Clean and dry glass equipment may be siliconized by applying a 5-10 percent solution of organochloro-cilane in an organic solvent and rinsing with 1-2 percent solution of silicone-oil or resin. The coating can be burned in by heating to 130-350°C. Siliconized bottles are suitable for penicillin suspensions; however it is necessary to add a hydrophobic agent since sealing of the ampuls destroys the silicone film. On alkali-rich glass the film is not heat-resistent, the film on alkali-poor glass can be heated without loosing its properties. Siliconized glass bottles do not need to be cleaned before pouring in another solution, because the bottles can be emptied completely.

Bilirubin Determination in Blood by Dr. M. J. Schulte, Arnhem, Holland.

A new method for determining bilirubin in blood is outlined.

Pharmaceutical Aspects of Dermatology by J. W. Hadgraft, London, England.

The author discusses the treatment of Herpes tonsurans (ringworm of the scalp), seborrheic- and alkali-dermatitus. In the first case extensive investigations show that the fungicidal agents phenylmercurynitrate and calicylanilide can be applied successfully using polyethylene glycol as an ointment base. The advantages of this base are solubility in water, and good penetrating and dissolving properties for organic compounds. For the second case an emulsion ointment of the oil/water or water/oil-types is very suitable depending on the application. The oil/water types is especially advantageous as a scalp ointment, because it can be easily washed off.

The ointment contains gluconic acid-peptone as a buffer (*p*H 3, 9-4, 15). The emulgator should not ionize, one percent benzoic acid as preservation agent, polyethylene glycol as stabilizer. Depending on the desired consistency, the ointment can also contain white petrolatum, liquid paraffin or adeps lanae-alcohols. The possibility of adding ion-exchanger to produce ointments with constant *p*H has been investigated.

Sclerotina Lib. F.: Drugs Acting on the Uterus by Dr. B. Gradnik, Milano, Italy.

The author investigated the sclerotium of a parasitic fungus *Sclerotinia libertiana* (Helotiaceae), which principally attacks vegetables and leguminous plants. He further investigated the pharmacological and chemical properties of the active principles of the sclerotia.

Prevention of Medicine-Overdosage in Hospitals by Dr. Gustav Geist, Karlsruhe, Germany.

To prevent overdosage of medications in hospitals, the author points out the importance of pharmacological knowledge. He suggests that a commission be charged to publish officially the maximum doses for highly active medicinals and preparations should not be made on the different wards, but only by the hospital pharmacist.

Irritating Surgical Gauze and Its Cause by Dr. H. Kaiser, Stuttgart, Germany.

A considerable quantity of surgical gauze was returned to a supply-firm because it was hard to the touch and caused irritation when applied to wounds. On study, it was found that the reason for this is that the washing lotions had not been sufficiently rinsed out (at least in certain parts), which is shown by the extremely high proportion of ether extract contained.

Standardization of Digitalis by Dr. R. San Martin, Barcelona, Spain.

The different methods for standardizing digitalis are discussed and the author proposes a standard method and some characteristics, in order to provide the physician with reliable values. Reports are reported on analyzing digitalis colorimetrically.

Fat Emulsions for Intravenous Use by Dr. P. Sorgdrager, Utrecht, Holland.

Considerations and methods of preparing fat for parenteral use were outlined.

The Institutional Pharmacy and the University Clinics by Dr. R. Gager, Graz, Austria.

The author suggest spheres of activity in which the hospital pharmacist may prove valuable. These might include clinical laboratory work, instructor and information on pharmaceutical specialties.

Hospital Toxicology by Dr. R. Truhaut, Paris, France.

The author discusses toxicological problems which may arise in the hospital in the following fields: Therapy; Forensic Medicine; Industrial Medicine; Food Chemistry; and Hospital Hygiene.

Importance of Organization of a Laboratory for Research and Control in a Hospital Pharmacy by Dr. P. Uccelli, Milano, Italy.

Control of Fresh Milk in Hospitals by Dr. M. Cormier, Rennes, France.

Organization of the Hospital Pharmacy at Vienna by Dr. A. Schilhab, Vienna, Austria.

Paris and London 1953

The Fifteenth General Assembly of the International Pharmaceutical Federation will meet in Paris in 1953 from September 14 to 18. Plans for the Hospital Pharmacy Section of the Federation are now being formulated by a committee composed of Dr. Jean Cheymol of France, chairman; Herbert Grainger of Great Britain; and Don E. Francke of the United States. American hospital pharmacists who desire to present a paper at this meeting, or who would like further information about the meeting are requested to write to Don E. Francke, University Hospital, Ann Arbor, Michigan. The American Society of Hospital Pharmacists, as well as the American Pharmaceutical Association, is expected to have a large delegation at this meeting.

In addition to the hospital pharmacy meetings, the International Pharmaceutical Federation includes many other sections with a broad range of interest which should appeal to all pharmacists. These include meetings of Directors of Laboratories, Military Pharmacists, Pharmaceutical Editors, a Scientific Section and other specialized groups. In addition, the General Assembly of the Federation will carry to pharmacists of many lands important messages for continued progress in our profession.

Special tours and opportunities for entertainment will be arranged by our French colleagues for those attending the Assembly. Without a doubt, the 1953 meeting of the International Pharmaceutical Federation will be one of the most successful ever held.

Those who wish to become associated members of the International Pharmaceutical Federation and to receive its *Bulletin* may do so by sending their name, title, and address (together with a check for $2.75 for dues) to Don E. Francke, University Hospital, Ann Arbor, Michigan.

Fortuitously, the Conference of the Pharmaceutical Society of Great Britain will be held shortly before the Federation meeting. Scheduled for London during the week of August 31, this outstanding British event will prove of high interest to American pharmacists.

The week between the meeting of the Conference and that of the Federation will permit those attending to visit other European points of interest. Further information on these meetings will be published in future issues of THE BULLETIN.

Methods for Appraisal of

ANTISEPTIC PROPERTIES OF CHEMICAL DISINFECTANTS

with Special Reference to

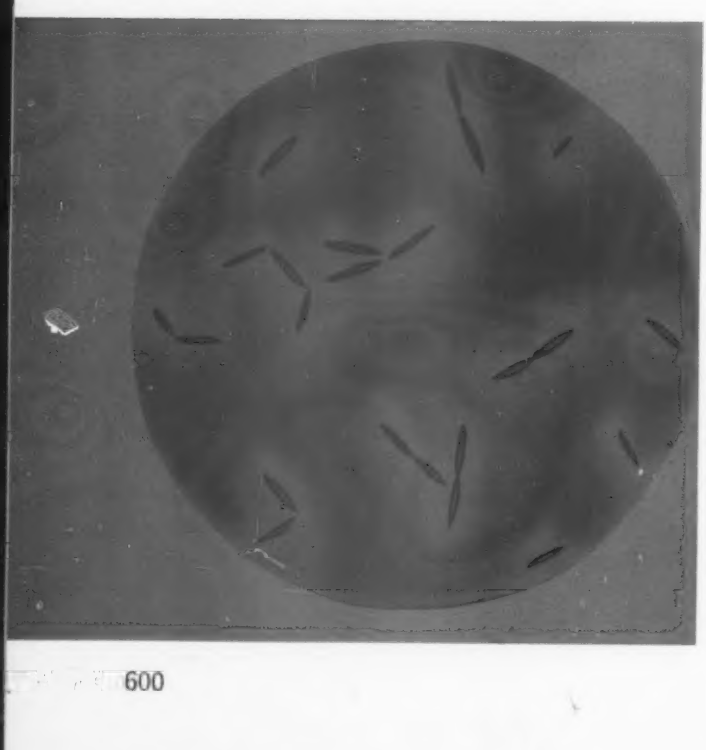
BACTINE

by C. A. LAWRENCE
B. E. LINDERHOLM
WM. BEPPLER

AMONG the various proprietary medicinals that are widely distributed for use in the home and in the medical professions, probably no single class of medicaments receive more attention today than antiseptics and disinfectants. Since the introduction of phenol in aseptic surgery by Lister in 1870 and the use of bichloride of mercury by Koch in 1876, chemical disinfection has played an important role in the prophylaxis of infections.

During the past several decades, numerous reports have appeared in the literature relevant to the proper evaluation of chemical sterilizing agents for the destruction of microorganisms. Investigators in the fields of antiseptics and disinfectants are in general agreement that laboratory *in vitro* test methods (Phenol Coefficient tests, etc.) are unsatisfactory for determining the true activity of disinfectants which are to be applied to animate and inanimate objects. Some workers consider, therefore, that *in vitro* tests should be augmented by *in vivo* "infection-prevention," experiments on laboratory animals in the final analysis of the germicidal effectiveness of such antiseptics. Others actually make use of tests on human subjects for solutions that are recommended for skin sterilization.

The recent introduction of a new proprietary antiseptic, "Bactine," which has been widely pub-



Bactine is a product of the Miles Laboratory, Inc., Elkhart, Ind. Active Ingredients: Di-isobutyl-*p*-cresoxy-ethoxy-ethyl-dimethyl-benzyl-ammonium chloride, polyethylene glycol, mono-iso-octyl-phenyl ether, chlorothymol, alcohol (5 percent); Inert Ingredients: Water, propylene glycol, essential oils. Total inert 95 percent."

Aided by a grant from the Therapeutic Research Fund, University of Michigan Hospital.

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Described here are methods for evaluating antiseptics—in vitro, in vivo, "infection prevention" experiments, and finally actual tests on human subjects.

licized by the manufacturer as a household and surgical disinfectant, led to an inquiry as to whether or not the solution could be safely relied upon for use in hospital practices for the destruction of microorganisms. Thus, the present investigation is an attempt to examine the claims for the antiseptic solution under controlled laboratory conditions and also when applied clinically.

In Vitro Effects on Various Microorganisms

A preliminary examination of Bactine was carried out against a variety of bacteria and fungi using the conventional (U. S. Department of Agriculture) test method for evaluation of antiseptics and disinfectants. Modifications in the test procedure were made in testing the solution against fungi.

Beef extract broth (FDA) was used as the culture medium for all the bacteria excepting the tests in which the streptococcus was studied. For the latter, Brain Heart Infusion Broth (Difco) was used. Three yeast-like organisms and four strains of fungi were used to evaluate the fungicidal activity of Bactine. A modification of the U.S.D.A. procedure was used in studying these organisms.[1] The medium consisted of 4 percent maltose and 1 percent Neopeptone (Difco) in distilled water. An incubation period beyond 72 hours was employed in order to permit the slow-growing fungi to fully develop. The yeasts were allowed to incubate for 10 days. The results of these studies are presented in Table 1, page 602.

Results: In summarizing the data given in the table, it may be noted that the *Pseudomonas* and *Proteus* organisms are more resistant to Bactine than to phenol. Yet, the other gram-negative bacteria, *E. typhosa* and *E. coli*, are relatively sensitive to the former germicide. Furthermore, the gram-positive organisms, *S. aureus, B. anthracis* and the streptococcus are more susceptible to Bactine than to phenol. In the series of yeasts and fungi tested, the pathogenic organisms are more resistant to Bactine than to phenol. A converse in activity of the two solutions may be noted when the saprophytic organisms, *S. cerevisiae* and *P. ovale* are used in the test.

Effects upon Mycobacterium tuberculosis, H37-Rv.

Chemical sterilization is necessary for the treatment of certain surgical instruments, optical instruments, catheters, etc., which cannot be sterilized by boiling or autoclaving. Inasmuch as Bactine is recommended for use in the sterilization of instruments, it was desirable to determine the germicidal action of the solution on acid-fast microorganisms that may be encountered in surgical practice. Thus, a study was made of the effects of Bactine upon a saline suspension of a pure culture of *M. tuberculosis, H37-Rv,* using an *in vitro* and *in vivo* (guinea pig) technic, respectively, as outlined in a previous communication from these laboratories.[2]

A germicide which we have previously shown to be effective against the tubercle bacillus[a] and a 70 percent solution of ethyl alcohol were included in this study for comparative purposes. It is not to be inferred that either of the solutions mentioned was selected on the basis of their similarity in formulation or subsequent use as that of Bactine. The first solution listed is corrosive to tissues and its use is limited to application on inanimate objects. The alcohol solution is used often by some physicians for the preparation of the skin prior to injections. Thus, inclusion of the agents in the present study was purposefully for control measures. A summary of this investigation is presented in Table 2, page 603.

Results: An examination of the data given in the table reveals that while Bactine (undiluted and 1:5) did not completely destroy the tubercle bacilli in the tests, definite prolongation in survival time of the animals was noted. This is based upon the data obtained with Bactine (undiluted) in which 4 of the 5 animals survived the experiment, or 12 week period, yet showed evidence of tuberculosis on autopsy. In contrast to the high incidence of survivals in the Bactine series, the untreated control animals all died before the termination of the experiment, or within 5 to 9 weeks after being injected with the saline suspension of organisms. In the other control series, 3 of the 4 animals injected with the 70 percent alcohol-treated organism suspension, survived the experiment but with evidence in practically all instances of tuberculosis of the tissues upon autopsy. All animals, which received suspensions of organisms following treatment with the quaternary-formaldehyde solution, survived the 12 weeks' study with no evidence of gross or micro-

a. This solution is prepared and designated at the University of Michigan Hospital as "Benzalkonium Germicidal Solution," the active components of which are isopropanol, methanol, formaldehyde, alkyldimethylbenzylammonium chloride and sodium nitrite.[2]

TABLE 1. A COMPARISON OF THE *In Vitro* EFFECTS OF BACTINE and Phenol, upon Microorganisms

ORGANISM	HIGHEST DILUTION EFFECTIVE IN 10 BUT NOT IN 5 MIN.	
	BACTINE	PHENOL
Staphylococcus aureus	1:200	1:80
Eberthella typhosa	1:90	1:90
Pseudomonas aeruginosa	1:10	1:85
Pseudomonas fluorescens	1:15	1:90
Escherichia coli	1:175	1:75
Proteus vulgaris	1:40	1:90
Bacillus anthracis	1:15	<1:15
Streptococcus pyogenes	1:100	1:90
Saccharomyces cerevisiae	1:250	1:110
Pityrosporum ovale	1:100	1:90
Monilia albicans	1:30	1:70
Mycrosporon fulvum (gypseum)	1:50	1:90
Tricophyton gypseum (granular var.)	1:40	1:80
*Tricophyton gypseum (interdigitale)**	1:40	1:60
*Tricophyton gypseum (interdigitale)**	1:40	1:70

* Strains recently isolated from active clinical cases of Athlete's Foot infection.
Figure preceded by symbol < indicates highest concentrations of phenol tested failed to destroy the organisms.

scopic pathology upon autopsy. Furthermore, in the latter instance, there was no evidence of the organisms developing on Petragnani's slants following treatment with the germicide.

Evaluation by the "Infection-Prevention" Test.

Since Bactine is recommended as a skin disinfectant, it was desirable to evaluate the germicide by a test simulating conditions for which the solution has been advocated. For this purpose the "Infection-Prevention" test described by Nungester and Kempf[3] was used to determine the activity of the solution upon a mouse virulent strain of *Streptococcus pyogenes.*

In order to compare the germicidal activity of Bactine under the conditions of this experiment, several other disinfectants were included here: A description of these solutions are as follows:

1. Bactine
2. Merthiolate Aqueous Untinted, 1:1000[b]
3. Merthiolate Tincture Tinted 1:1000[b]
4. Phemerol Aqueous Untinted 1:1000[c]
5. Iodine Tincture Mild, (2%)
6. Benzalkonium Germicidal Solution[d]
7. Alcohol 50% - Acetone 10% - Water 40%

b Sodium ethylmercurithiosalicylate (Eli Lilly & Company).
c p-tertiaryoctylphenoxyethoxyethyldimethylbenzylammonium chloride (Parke, Davis & Company).
d See footnote a

Results: Table 3 presents a summary of the results obtained in this study using a total of 65 mice. The data given on any one disinfectant is the result of two or more tests carried out on separate days which include the necessary controls. In summarizing the results given in the table it may be noted that with a slight prolongation of survival times, the animals in which aqueous Merthiolate and Phemerol were tested, showed approximately the same percentage of mortality as those treated with the physiological saline control, or those in which no form of treatment was used.

Survival of the animals following treatment of the infected tissue with Tincture of Merthiolate can be attributed to the alcohol-acetone present in the solution. This is based on the evidence that the alcohol-acetone solution, without Merthiolate, afforded approximately the same degree of protection of the animals from the infection. In the Bactine (5 percent alcohol) and Tincture of Merthiolate series, a single animal failed to survive the experiment. Inasmuch as no streptococci could be recovered from these animals upon autopsy, these deaths have been attributed to shock or trauma from the anesthesia or operation. Assuming the latter to be true, the latter solutions could be compared to the degree of effectiveness with the alcohol-acetone solution, Tincture of Iodine, and Benzalkonium Germicidal solution, in giving complete

TABLE 2. EFFECTS OF BACTINE UPON *Mycobacterium tuberculosis* - H37Rv

SOLUTION	PETRAGNANI MEDIUM RESULTS*	ANIMAL RESULTS			
		SURVIVAL TIME (WKS.)	GROSS*** FINDINGS	MICROSCOPIC FINDINGS***	NATURE OF PROCESS****
Bactine (undiluted)	++ ++	7	+	+	++
		S–12**	+	+	+++
		S–12	+	+	++
		S–12	+	+	+++
		S–12	+	+	+++
Bactine (1:5 aq.)	+++++	6	+	+	++++
		8	+	+	++++
		S–12	+	+	+++
		S–12	+	+	+++
		S–12	+	+	+++
Benzalkonium Solution	-----	S–12	–	–	0
		S–12	–	–	?
		S–12	–	–	0
		S–12	–	–	?
		S–12	–	–	?
Ethanol 70%	+++++	10	+	+	+++
		S–12	+	–	+++
		S–12	–	–	?
		S–12	+	+	+++
Physiological Saline Control		5	+	+	++++
		6	+	+	++++
		7	+	+	++++
		9	+	+	+++
		9	+	+	+++

Legend: * + and – indicates growth or no growth respectively in separate tubes of medium.

** S–12 indicates animals survived test period of 12 weeks and were therefore sacrificed and autopsied at this time.

*** Under these columns + indicates presence of macroscopic lesions or presence of acid-fast bacteria in stains, respectively. – indicates no gross pathology or presence of acid-fast bacteria in stains, respectively.

**** ++ denotes several organs involved.

+++ denotes some involvement of all internal organs.

++++ denotes widespread involvement of all internal organs.

0 denotes no evidence of progressive disease.

? denotes questionable findings in some tissues.

protection of the animals in the experimental streptococcal infections.

Evaluation in Preoperative Scrubs.

The use of Bactine as a preoperative skin disinfectant was compared with the routine disinfection procedure in current use in the Surgery Departments of the University of Michigan Hospital. On the basis of early evidence presented by Nungester, Thirlby and Vial,[4] that 3 percent "hexachlorophene"[e] in soap, when applied to the skin for 3 minutes without a brush, is superior to the two brush, 10 minute surgical scrub, recommendations were made for the application of the former procedure instead of the conventional surgical scrub followed by the use of a chemical disinfectant for surgical scrubs, as well as for preparing the operative fields of patients. This led to the adoption of 3 percent hexachlorophene in liquid soap for the latter purpose in most of the surgical services in the University of Michigan Hospital.

In many instances the 3-minute hexachlorophene-soap skin preparation is not followed by the use of another chemical disinfectant, although some individuals preferred to use a mild tinted tincture (Zephiran) immediately prior to operative procedures for the purpose of "outlining the hexachlorophene-disinfected area" which was afforded by the dye contained in the tincture.

Series A. The preoperative skin disinfection procedure currently employed at the Hospital is as follows: Three percent hexachlorophene in pHisoderm[f] is applied to the operative area with water and the hair shaved on the night before surgery.

e Hexachlorophene (G-11) is a brand of 2,2'-dihydroxy-3, 5, 6, 3', 5', 6'-hexachlorodiphenylmethane (Givaudan-Delawanna Company).

f pHisoderm is a synthetic soap-substitute containing a detergent, sodium t-octylphenoxyethoxyethylether sulfonate (Winthrop-Stearns, Incorporated).

TABLE 3. AN EVALUATION OF SEVERAL DISINFECTANTS AGAINST *Streptococcus pyogenes* BY THE "INFECTION-PREVENTION" TEST

DISINFECTANT	NUMBER MICE USED	NUMBER MICE DEAD	MORTALITY	AVERAGE TIME DEATHS IN DAYS	STREP. RECOVERY AFTER DEATH
Merthiolate aqueous 1:1000	6	6	100.0 %	2.14	100 %
Phemerol aqueous 1:1000	8	7	85. %	3.50	100 %
Bactine (undiluted)	10	1*	10. %	2.90	0
Merthiolate tinct. 1:1000	7	1*	14.2 %	5.00	0
Alcohol + Acetone (50% + 10%)	5	0	0	–	–
Tinct. Iodine 2%	5	0	0	–	–
Benzalkonium Germicidal Sol.	6	0	0	–	–
Physiological Saline Sol.	8	8	100.0 %	1.90	100 %
No Treatment	10	10	100.0 %	1.18	100 %

* Since no streptococci were recovered from the tissues of these animals upon autopsy, death may have been the result of shock and trauma from the operative procedure or from anesthesia.

TABLE 4. HEXACHLOROPHENE (3%) IN pHISODERM AS A PREOPERATIVE SKIN DISINFECTANT

	Swab Findings			Biopsy Findings	
Patient	Total Count		Microscopic Results	TAT Broth	BHI Broth
J. C.	BA	600*	Gram-pos. cocci, sarcines-nonhemolytic	0	0
	FDA	560			
J. O.	BA	2,830	Gram-pos. cocci sarine, strep., non-hemol.; Gm. -neg. bacilli	0	0
	FDA	2,720			
H. E.	BA	735	Gram-pos. cocci sarcine, strep., non-hemolytic	0	0
	FDA	700			
E. K.	BA	550	Gram-pos. cocci sarcine, strep., non-hemolytic	Gram-positive hemol. bacillus	0
	FDA	600			
G. H.	BA estimated as		Gram-neg. bacillus Gram-pos. bacillus	0	0
	FDA	17,000	Gram-pos. staph. & yeast		
T. Z.	BA	150	Gram-pos. bacillus Gram-pos. cocci, strep.	0	0
	FDA	230	nonhemolytic		
G. S.	BA	45	Gram-pos. bacillus, spreader Gram-pos. coccus, weakly	0	0
	FDA	53	hemolytic, staph.		
J. R.	BA	90	Gram-pos. cocci, staph., nonhemolytic	0	0
	FDA	75			
R. M.	BA	40	Gram-pos., cocci, nonhemol. staph.; Gram-pos. bacillus	0	0
	FDA	20			
F. W.	BA	775	Gram-pos. cocci, non-hemolytic staph.	Same	Same
	FDA	815			

Legend: BA = heart infusion agar containing blood
FDA = beef extract agar
*Figures represent numbers of organisms per swab estimated removed from treated area of patient.
0 = culture medium failed to show evidence of visible growth of organisms
TAT = Tween-Asolectin-Thioglycollate broth
BHI = Brain Heart Infusion broth

TABLE 5. HEXACHLOROPHENE (3%) IN PHISODERM, FOLLOWED BY TINCTURE ZEPHIRAN (1:1000) AS A PREOPERATIVE SKIN DISINFECTION

PATIENT	SWAB FINDINGS			BIOPSY FINDINGS	
	TOTAL COUNT		TYPES OF ORGANISMS	TYPES OF ORGANISMS	
				TAT BROTH	BHI BROTH
J. B.	BA	0	–	0	0
	FDA	0	–		
H. G.	BA	0	–	0	0
	FDA	0	–		
S. O.	BA	0	–	0	0
	FDA	0	–		
J. R.*	BA	95	Gram-pos. hemol. staph.	Gram-pos. hemol. staph.;	
	FDA	60	Gram-pos. hemol. bacilli	Gram-neg. hemol. diplococcus	
F. A.	BA	0	–	0	0
	FDA	0	–		
A. W.	BA	0	–	0	0
	FDA	0	–		
C. R.	BA	0	–	0	0
	FDA	0	–		
E. W.	BA	30	Gram-pos. nonhemolytic	Gram-positive	0
	FDA	85	staph.	bacillus	
E. N.	BA	0	–	0	0
	FDA	0	–		
G. P.	BA	0	–	0	0
	FDA	0	–		
M. D.	BA	0	–	0	0
	FDA	0	–		

*Patient J. R. was a herniotomy case, thus the sterile preparation of the skin in this procedure may be met with some difficulty due to larger and deeper hair follicles.

Legend: BA = heart infusion agar containing blood
FDA = beef extract agar
0 = culture medium failed to show evidence of visible growth of organisms
TAT = Tween-Asolectin-Thioglycollate broth
BHI = Brain Heart Infusion broth
*Figures represent numbers of organisms per swab estimated removed from treated area of patient.

TABLE 6. BACTINE AS A PREOPERATIVE SKIN DISINFECTANT

PATIENT	SWAB FINDINGS			BIOPSY FINDINGS	
	TOTAL COUNT		MICROSCOPIC RESULTS	TAT BROTH	BHI BROTH
W. M.	BA	0*	–	0	0
	FDA	0	–		
M. S.	BA	0	–	0	0
	FDA	0	–		
A. D.	BA	0	–	0	0
	FDA	0	–		
H. B.	BA	0	–	0	0
	FDA	0	–		
H. S.	BA	0	–	0	0
	FDA	0	–		
E. U.	BA	0	–	0	0
	FDA	0	–		
E. G.	BA	0	–	0	0
	FDA	0	–		
	BA	0	–	0	0
J. B.	FDA	0	–		
A. F.	BA	30	Gram-pos. bacillus,	0	0
	FDA	5	nonhemolytic		
J. A.	BA	15	Gram-pos. coccus,	0	0
	FDA	5	nonhemolytic strept.		
F. M.	BA	0	Gram-pos. bacillus	0	0
	FDA	10	nonhemolytic		

Legend: BA = heart infusion agar containing blood
FDA = beef extract agar
*Figures represent numbers of organisms per swab estimated removed from treated area of patient.
0 = culture medium failed to show evidence of visible growth of organisms
TAT = Tween-Asolectin-Thioglycollate broth
BHI = Brain Heart Infusion broth

On the following day, prior to surgery, the area is again scrubbed thoroughly with the hexachlorophene-detergent and water. The area is then draped with a sterile sheet and without treatment the patient is presented to surgery.

Series B. Some surgical services include a spray of the operative site with tinted Tincture of Zephiran immediately prior to operation, but here also the hexachlorophene-detergent scrub is carried out as indicated in Series A.

Series C. In evaluating the disinfection activity of Bactine on the bacterial flora of the skin, the conventional method of preparing the patient was carried out. This consisted of scrubbing the operative area the night before with water and U. S. P. Tincture of Green Soap at which time the skin was shaved. This was then followed by a generous application of Bactine. On the following day and just before operation the area was again treated with the germicide.

In order to evaluate the effectiveness of the three methods of surgical disinfection procedures, patients were selected in most instances who were to undergo laparotomies. In this manner the consistency and texture of the skin of the abdomen could be considered rather uniform in the tests to be carried out. Immediately prior to operation, the disinfected area was swabbed with sterile cotton-tipped wooden applicators moistened with TAT broth (a quaternary ammonium surface-active germicide "inactivator" medium).[5] The swabbing was begun at the center of the disinfected area and continued toward the periphery in a continuous ever widening circle with frequent rotation of the swab. The swab was then placed in a sterile tube containing 0.25 ml. of TAT broth and refrigerated until examined bacteriologically.

During the initial incision a biopsy specimen of approximately one-half inch long was taken and immediately placed in a tube containing 10 ml. TAT broth. For bacteriological examinations, to each tube containing the swab specimen was added an additional 5 ml. of TAT broth. The swab was thoroughly rinsed in the medium and 0.5 ml. as well as 1 ml. of the latter added to sterile Petri dishes. To one set of plates was added melted and cooled (45°C) beef extract agar. Another set of plates with the test samples received melted and cooled Brain Infusion Agar (Difco) containing 10 percent whole human blood (citrated). The plates were incubated at 37°C for 72 hours and the presence of bacterial growth recorded. Colonies developing on and in the agar were counted and an estimate made of the total numbers removed from the operative area by the swabs. In addition slide-smears were made of representative colonies developing in the plates and their morphology and Gram stain reactions determined microscopically.

The biopsy specimen, contained in 10 ml. of TAT broth was thoroughly rinsed in the medium with the aid of a sterile platinum wire and 2 ml. of the medium were added to a tube containing 10 ml. of brain heart infusion broth. The original tube containing the biopsy specimen and the brain broth cultures were incubated and the presence or absence of colonies, numbers, etc., determined as indicated before. Since it was felt that the function of time of sampling the swab and biopsy specimens and period of plating or culturing in the bacteriological laboratory may have had some bearing as to the colony counts or ability of the organisms to survive contact with the disinfectants, a series of tests were made on patients in which plates and broth cultures were prepared in the operating room immediately after the samples were collected. The results of these investigations are presented in Tables 4 through 7.

Results: In summarizing the data presented in the tables the following pertinent points will be noted:

Table 4 presents the results on the use of 3 percent hexachlorophene in pHisoderm as a preoperative skin disinfectant on patients for two consecutive days. The data indicate that this procedure will not provide a sterile area. Swabs made of the treated areas of the 10 patients were found to contain from 20 to 2,000 or more viable bacteria following this form of skin disinfection.

Table 5 presents data obtained on 11 patients prepared with 3 percent hexachlorophene in pHisoderm for two consecutive days and then spraying the operative area with 1:1000 Tincture of Zephiran just prior to operation. Only two patients in this group were found to have skin areas that were not sterile. The numbers of organisms found in these instances were from 30 to 95 per swab.

Table 6 presents the findings on the use of Bactine following the conventional Tincture of Green Soap scrub. Of 11 patients prepared for surgery by this procedure, only three skin areas were found to have residual, viable organisms. The numbers of bacteria removed from the treated areas of these individuals by the swab technique were from 10 to 30 organisms per patient.

Table 7 presents data confirming the results given in Tables 5 and 6 in which hexachlorophene-pHisoderm followed by Tincture of Zephiran, or Tincture of Green Soap followed by Bactine can be expected to give a very low bacterial population of the prepared skin.

Summary

1. *In vitro* and *in vivo* methods are described for the appraisal of antiseptics that are advocated for general and surgical disinfection.

2. A proprietary product, Bactine, was evaluated under laboratory conditions and found to be effect-

TABLE 7. HEXACHLOROPHENE-pHISODERM-ZEPHIRAN* AND BACTINE** IN THE PRESURGICAL SCRUB (SWAB SAMPLES PLATED IMMEDIATELY AFTER USE)

PATIENT	SWAB FINDINGS		BIOPSY FINDINGS
	TOTAL COUNT	MICROSCOPIC RESULTS	BRAIN HEART INFUSION BROTH
		Bactine Treated Patients	
J. M.	0	–	0
F. B.	0	–	0
E. K.***	20	Gram-pos. coccus nonhemolytic	same
		Hexachlorophene-pHisoderm-Zephiran Treated Patients	
L. E.	0	–	0
P. B.	0	–	0
A. L.	0	–	0
W. B.	0	–	0
M. S.	10	Gram-pos. bacillus nonhemolytic	same
W. N.****	75	Gram-pos. coccus, nonhemolytic	same

*Patients prepared as indicated in text "Series B"

**Patients prepared as indicated in text "Series C"

***Thyroidectomy patient male, thus large and deep hair follicles of beard may account for incomplete disinfection.

****Hernia repair case, thus sterile preparation of the skin in this patient may be met with some difficulty due to larger and deeper hair follicles than that encountered on abdominal area.

ive in destroying bacteria, yeasts and fungi under controlled *in vitro* conditions.

3. Infection-Prevention tests revealed that Bactine can be relied upon to kill a pathogenic strain of streptococcus. The activity of the solution against the latter organism is much superior to aqueous solutions of Merthiolate and Phemerol and compares in action to that of 2 percent Tincture of Iodine or Tincture of Merthiolate.

4. Bactine was not effective against the tubercle bacillus.

5. Methods are described for the evaluation of disinfectants used in the preoperative preparation of the patients' skin for surgery. Evidence is presented to show that the use of 3 percent hexachlorophene in a liquid synthetic soap will not provide a sterile skin surface for surgery. The latter may be achieved, however, if the skin is also treated with a mild tincture just prior ot operation.

6. The use of Bactine, following the conventional Tincture of Green Soap scrub, has also been found to give a high incidence of bacterial-free operative sites.

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BOOK REVIEWS

PRINCIPLES OF HOSPITAL ADMINISTRATION. By John McGibony, M.D. 540 pages. Published by G. P. Putnam's Sons, New York City, 1952. 5½" x 8¼". Price $6.40.

With trends and practices under constant change in the hospital field, this book presents in compact form up-to-the-minute data and yardsticks for planning and operating hospitals. The author has condensed material from a wide variety of sources with the aid of specialists from many diverse hospital services. The book is noteworthy in that much practical research data (Previously published as suggested guides for hospitals built under the Hill-Burton Act) is incorporated in its pages—data in which the author played a large role in initiating and guiding avenues of study.

One section deals with planning for hospital services in their relation to the community. Formulae, experience tables, as well as patterned steps to be followed in such areas as fund raising, functional planning, consultation service, bed distribution, space requirements and construction costs are noted. Another section of chapters covers the plan of operation involving top authority and medical staff organization. A good discussion is presented which is infrequently noted in the reference texts regarding establishment of hospital standards of maintenance and operation on a legal basis. Authoritatively, ramifications of hospital licensure acts are explored with suggested wording for such as a state act which would set up minimum legal standards of maintenance and operation. The third section involves "Management" services covering aspects of public relations, legal responsibilities, personnel practices, financial operations, hospital plant services and safety, fire and disaster planning. The fourth section covers clinical services, including a chapter on the pharmacy department.

The pharmacy chapter was prepared in cooperation with specialists A. M. Milne and George Archambault of the U. S. Public Health Service. It epitomizes the principles of modern hospital pharmacy conduct advanced by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. These principles cover the duties of a hospital pharmacist, minimum standards, organization, supervision and control, emergency drugs, purchasing, manufacturing, departmental reports, drug policy, formulary, charges for drugs, physical facilities and narcotics control. A special note is made of the small hospital.

The concluding chapter defines specific areas in which the hospital field could profitably conduct new studies and research as the basis for additional guides of operation. For example, in nursing a suggested research area is a guide for accurate measurement of nursing service other than hours of care per patient by service, and by size and type of hospital. A suggested research for pharmacy is a study of effective measures for reducing the medication cost to the patient.

Dr. McGibony's book is a condensation covering a broad area—a fact that recommends it as a reference guide for practicing administrators and department heads rather than an all-inclusive primer for neophyte students in administration. It provides yardsticks for measuring performance and guides for planning rather than detailing methods which are found by consulting the generous bibliographic references. A more liberal sprinkling of illustrations (such as found in some of the bibliographic references), if incorporated in the book, might assist the reader in grasping the full import of some condensed sections if he lacks personal experience with the subject matter. A special value of the book throughout all sections is the philosophies and concepts representing the best authoritative thinking and vision of trends that will provide greater availability and effectiveness of hospital care for the future.

The book fills a special reference need in the library of both administrators and department heads who wish to keep abreast of modern operational concepts in their institutions.

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HANDBOOK OF PHARMACOLOGY FOR NURSES, 1952. Edited by Robert Shestack, Ph.G.R.P., P.T.R. Instructor of Pharmacology, School of Nursing and Director of Physical Therapy, Washington County Hospital, Hagerstown. Published by W. B. Saunders Company, Philadelphia and London. 171 pages, cloth bound. Price $3.00.

This text could aptly be subtitled, "Basic Pharmacological Principles for Routine Use," or "Course Outline for Instructors of Pharmacology to Nurses." Viewing this book as a hospital pharmacist and an instructor of pharmacology to student nurses, I think that the author is to be congratulated on being able to crystallize the fundamental facts of current pharmacology in

such an appropriate and concise manner. The terse, yet descriptive phrases containing all the necessary information with which the author replaces the conventional essay style make the text extremely practical.

For years the reviewer has been aware of the fundamental differences between the basic pharmacological education of the pharmacist and concepts required of the student nurse. Nevertheless, it is the hospital pharmacists who are usually called upon to teach pharmacology to student nurses. This book serves to combine the two viewpoints for the hospital pharmacists who might find themselves in such a position. Such individuals would find this little book useful in drawing up an adequate course outline where such might be required, or to use it as an excellent safe guide for teaching that course adequately.

Due to its lack of bibliography the reviewer feels that it cannot be safely put into the hands of the student nurse or other nursing personnel as a sole text or reference book. Neither should it be used as such on the nursing services unless other means are taken to supply supplementary information. However, where it is used under adequate supervision and guidance there is no doubt that it can become an effective tool in imparting a well organized and balanced concept of modern pharmacological trends and drug therapy.

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PHARMACOLOGY AND THERAPEUTICS. 1951 By Arthur Grollman, Ph.D., M.D., F.A.C.P. 6" x 9", 828 pages. Published by Lea and Febiger, Washington Square, Philadelphia 6, Pa. Price $10.00.

Dr. Grollman has written a carefully planned and well balanced textbook. He includes a thorough discussion of drugs listed in the U.S.P., N.F., and the N.N.R., as well as many of the newer drugs in common use. In his discussion Dr. Grollman includes the actions, indications, toxic effects, dosages and methods of administration of the drugs described. A special feature of the book is the thorough coverage of newer therapeutically important drugs. These are covered in an inclusive manner and their large number make the book particularly useful.

At the end of each chapter is a list of preparations of the drugs discussed in the foregoing chapter. This list is helpful for rapid reference since it includes both American and British official preparations with concise statements on dosage, physical and chemical characteristics, method of administration and dosage forms.

In addition to the regular index, Dr. Grollman has included a very useful classification of drugs according to their therapeutic uses.

There is also an appendix which deals with prescription writing. There are many useful hints to the practitioner, although one of these may cause some confusion. Among his examples for liquid prescriptions, Dr. Grollman gives model prescriptions calling for a total of 100 cc. and in another case, 200 cc. Prescription bottles being as they are, this advice if followed would lead to misunderstanding and confusion among all concerned in handling prescriptions of this type.

Dr. Grollman's *Pharmacology and Therapeutics* is a well rounded text which would be a valuable reference for inclusion in the hospital pharmacist's library.

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THE EXTRA PHARMACOPOEIA (MARTINDALE). Twenty-third Edition (In two volumes), Volume 1, 1952. Published by direction of the Council of the Pharmaceutical Society of Great Britain, The Pharmaceutical Press, 17 Bloomsbury Square, W.C.1., London, 5" x 7½", 1352 pages, bound. Price 55s ($7.70) plus postage 1s (14c).

The Extra Pharmacopoeia, widely known as "Martindale," presents what is probably one of the most complete references for the pharmacist as well as the medical practitioner. An English publication, here is presented the twenty-third edition of a reference originally published in 1883 by William Martindale who served as a pharmacist at University College Hospital in London from 1868 to 1873. Since, the volume has increased from 313 pages to the size of the present publication of 1352 pages. Although originally intended "to provide medical practitioners and pharmacists with practical and up-to-date information on drugs and galenical preparations to supplement that contained in the *British Pharmacopoeia,*" the purpose of the present edition as stated in the Preface is "to provide for practising physicians and pharmacists a convenient book of reference on matters pertaining to the composition, properties, and uses of all substances, official, unofficial, and proprietary, used in medicine and pharmacy."

Martindale is now published under the direction of the Council of the Pharmaceutical Society of Great Britain and the present volume also incorporates *Squire's Companion,* once intended as a "Companion" to the *British Pharmacopoeia.*

The fact that in compiling this reference, the authors have consulted foreign works as well as their own materia medica, gives it a broad cover-

age of drugs supplemented with more than 4,000 abstracts of articles appearing in medical and pharmaceutical journals throughout the world. Still intended to be a "pocketbook," one of the advantages is the accumulation of such a vast amount of material in a small volume.

Of special interest to the hospital pharmacists practicing in the United States, is inclusion of the tradenames along with names of manufacturers both in England and foreign countries. A Therapeutic and Pharmacologic Index is included as well as a Drug Index.

GLORIA NIEMEYER

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PHARMACEUTICAL BOTANY—7th Edition, by Heber W. Youngken, Ph.M., Ph.D., Sc.D., Professor of Biology and Pharmacognosy, Massachusetts College of Pharmacy. 752 Pages, 6" x 9". Published by The Blakiston Company, Philadelphia, Pa., 1951. Price $7.00.

This Seventh Edition has been completely revised and rewritten. It includes *new* material on plant physiology—metabolism; plan environment; plant anatomy—meristems; phloem, vascular rays, plant hormones, synthetic chemical growth regulators, and the vitamins. Additional material on general botanical principles has also been furnished so as to make the book suitable for a course in general botany, in colleges where students of pharmacy and the liberal arts take the same course. The material is arranged to lead the student from the simpler, and less technical, to the more advanced aspects of the subject.

Some excellent teaching aids of this *Pharmaceutical Botany* are: The Glossary of 1,110 terms; the numerous illustrations (548) which are so beautifully executed; and the complete and easy-to-use Index. Other helpful aids are to be found in Appendix II, under Histologic Technic, where the methods of preparation of the various solutions for staining, and the technic of making the many types of mounts are so concisely explained and illustrated.

The Contents present: Preface to the Seventh Edition; Preface to the Sixth Edition; Preface to the First Edition; Acknowledgements; twenty three chapters on Scope and Importance of Botany; General Characteristics of Plants; Plant Cells; Leaves; Root; Bud and Stem; Metabolism; The Inflorescence; Flower; Fruit; Seed; Plant Environment; Plant Anatomy; Genetics and Evolution; Classification and naming of Plants; Thallophytes —I. Algae; Thallophytes—II. Fungi; Thallophytes—III.—Lichens; Bryophytes; Pteridophytes; Spermatophytes; Monocotyledons; Dicotyledons; Appendix I; Appendix II; The Microscope; Histologic Technic; Glossary, and a Classified List of Reference Works.

Chapter 15 has been completely revised and rewritten, and brought up-to-date with modern usage. It treats of the different Systems of Classification and Naming of plants (Taxonomy) as used by the various authorities, who preceded and followed the great Carl von Linne (Linnaeus) known as the father of modern systematic botany. He devised the Binomial System of Nomenclature. It affords interesting reading to note the various sources drawn upon in ascribing to plants their Specific and Generic Names, e.c., a peculiarity of structure, color, habit; or after a great botanist or naturalist such as Dioscorea in honor of Dioscorides, etc.

Chapters 21 and 22, under the titles Spermatophytes; Drug-yielding Monoctyledons, and Drug-Yielding Dicotyledons (respectively) present a total of five hundred and sixty five medicinal, drug-yielding plants. These are of great pharmaceutical and commercial interest. They are given in the order of: Name of drug; Part used; Botanical Origin; and Habitat. A high percentage of these drugs are official in the U.S.P. and N.F.

Regardless of the particular branch of Pharmacy in which we are engaged, we will do ourselves a genuine service to be in possession of this book as a source of reference.

God, the Divine Author of Nature, must surely bestow His invisible seal of approbation upon this magnificent work *Pharmaceutical Botany* which reflects so much honor and glory on His creative handiwork.

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PENICILLIN DECADE, by Lawrence Weld Smith, M.D. and Ann Dolan Walker, R.N. Arundel Press Inc., Washington, D.C., 1915. 122 pages. Price $2.50.

The title of this book is misleading since it deals only with one phase of penicillin therapy—sensitizations and toxicities during the decade 1941-1951. This work appears to be a complete annotation along the above stated lines during the past decade. A bibliography of 342 references is appended; and an index is included to complete this highly specialized volume. This book would find limited use in the hospital pharmacist's library.

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CURRENT LITERATURE

Edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

American Professional Pharmacist

AUGUST, 1952—"The Administrator Looks for Cooperation from the Pharmacist," by George R. Wren, Superintendent, Methodist Hospital, Gary, Ind. Presents the opinions of a Hospital Director on the subject of pharmaceutical services in various institutions. *page 716*

SEPTEMBER, 1952—"A New System of NO CREDITS—NO RETURNS for Late Pharmacy Charges," by Bernard F. Carr. Describes a new approach to a major problem in hospitals, that is, of charging for medications promptly on the patient's account, especially for the homegoing patient. *page 802*

"Views and Comments" by Forum Readers. Hospital pharmacists express opinions on articles appearing in the previous issues. Among the topics discussed are: "Retail Pharmacies Can Provide Service to Hospitals," and "Looking at the Last Twenty-Three Years in Hospitals." *page 808*

OCTOBER, 1952—"A Timely Step for Hospital Organizations Central Supply and Pharmacy Combinations," by Sister Mary John, R.S.M., F.A.C.A., chief pharmacist, Mercy Hospital, Toledo, Ohio. Describes how pharmacists are trained to assume a new or dual role in a hospital administration. *page 898*

"An Editorial Comment on Central Supply Supervision by Hospital Pharmacists," by John J. Zugich, M.P.H. An administrator's viewpoint on this topic. *page 904*

Hospital Management

AUGUST, 1952—"New Approved Drugs and Drugs Under Clinical Study," by Paul L. Wermer, M.D. Section Three of a Paper which appeared in previous issues. *page 72*

SEPTEMBER, 1952—"What the Hospital Pharmacist Should Know About ACTH" by John H. Glynn, M.D. Presents the status of ACTH based on clinical results and from discussion at the third ACTH conference held in April, 1952. *page 88*

OCTOBER, 1952—"Effective Standards Called Key to Good Pharmacy Service," by Jane L. Rogan, chief pharmacist, Evangelical Deaconess Hospital, Detroit, Mich. Presents a summary of the Decennial Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS held in Philadelphia. *page 100*

"Stimulation of Research by Means of Grants—Its Promise and Its Dangers," by Isaac Starr, M.D. Section Two of a paper which began in the September issue. *page 108*

Hospital Progress

OCTOBER, 1952—"Practical Applications of Minimum Standards" by George F. Archambault, PH.C., LL.B., D.Sc. Adapted from an address delivered at the Fourth Annual Institute for Hospital Pharmacists at the Catholic Hospital Association Convention, Cleveland, May 26, 1952. *page 90*

NOVEMBER, 1952—"Practical Applications of Minimum Standards," by George F. Archambault. Section Two of this paper comments on three of the six major points of the standard. *page 80*

Hospitals

SEPTEMBER, 1952—"The Institute Story," by Helen V. Pruitt. The director of educational services for the American Hospital Association explains the entire setup of the educational institutes including the financing, faculty members, institute students and opinions. The two accompaning illustrations are of the pharmacists institute held in Toronto, Canada in June, 1952. *page 63*

OCTOBER, 1952—"Industry Enters the Hospital to Train Supervisors," by Louise Wilkonson. A timely article for chief pharmacists and supervisors. *page 60*

Southern Hospitals

OCTOBER, 1952—"With the Hospital Pharmacist" by Joe Vance. Presents and excellent review of the text "Pharmacology in Clinical Practice," by Harry Beckman. *page 62*

NOVEMBER, 1952—"With the Hospital Pharmacist" by Joe Vance. Contains a worthwhile commentary on the proper use of hospital pharmacists and the golden opportunities for service a professional pharmacy in a hospital can present. *page 62*

THERAPEUTIC TRENDS

New trends in medicine and pharmacy include STIGMONENE BROMIDE IN DIAGNOSIS OF PREGNANCY — REGITINE — L-CYSTEINE IN HN2 THERAPY — ERYTHROMYCIN — NYDRAZID — OMPA — HIBICON

Edited by LEO F. GODLEY

Stigmonene Bromide in Diagnosis of Pregnancy

Some women experience a temporary delay in menstruation during periods of emotional stress. It has been known for some time that this condition responds favorably to treatment with parasympathomimetic drugs. The mechanism of this action is not clear. The prompt onset of bleeding in non-pregnant women and the absence of a similar response in pregnant women when given a cholinergic drug establish a "highly accurate" test for pregnancy. This process is further valuable since women who are informed of non-pregnancy by animal test may be ill at ease until normal menstruation is reestablished.

Stigmonene Bromide (Wm. R. Warner) as reported by Bookrajian and Truter in *Am. J. Med. Sci. 224*:386 (October) 1952, gave excellent results along these lines. Stigmonene is a synthetic alkaloid-like salt of the quaternary pyridinium series. It is a cholinesterase inhibitor and is less toxic than compounds of the physostigmine group.

Dose: 3 intramuscular injections of 1 cc. of a 1:1000 solution of Stigmonine Bromide on each of 3 successive days; if menses did not begin before or after the third day, the woman is presumed to be gravid. In a group of patients selected expressly for this test, the results were 100 percent accurate. This test proved better than Aschheim-Zondek tests which were given to all of these patients.

Diagnostic Agent in Pheochromocytoma

Phentolamine (Regitine-Ciba), 2-[(*m*-hydroxy-N-*p*-tolylanilino)-methyl] -2-imidazoline, a white crystalline compound, is used in the diagnosis of pheochromocytoma. Pheochromocytoma is a pathological condition characterized by the excessive discharge of epinephrine and norepinephrine into the blood stream with a consequent elevation of blood pressure. This condition is difficult to differentiate from other types of hypertensive disorders. In trials comparing Regitine with piperoxan (Benodaine) it was found that Regitine produced less fluctuation in blood pressure and fewer side effects. In uremia, both of these agents may give false positive results.

To differentiate between pheochromocytoma and other types of hypertension, these adrenergic blocking agents effect, in the former, a blood pressure lowering. Regitine produces a longer period of lowered pressure than Benodaine. Regitine may be used during surgery in the removal of pheochromocytoma to prevent epinephrine intoxication, as reported in *J. Am. Med. Assoc. 146*: 1383 (Aug. 11) 1951.

The dose of Regitine as a diagnostic agent is 5 mg. given intramuscularly or intravenously. Orally, 50 to 100 mg. doses may be administered. Side effects include tachycardia when given IM. When administered intravenously, tachycardia as well as dizziness, weakness and flushing have occurred, but these side effects have not been considered serious. Oral administration may cause untoward symptoms such as tachycardia, orthostatic hypotension, nasal stuffiness and gastrointestinal disturbances such as nausea, vomiting and diarrhea. Withdrawal of medication is not always necessary as a reduction in dosage is frequently followed by a disappearance of symptoms.

L-Cysteine Effects in Nitrogen Mustard Therapy

Weisberger *et al* at the University Hospitals in Cleveland reported in *Am. J. Med. Sci. 224*:201 (Aug.) 1952, a study of the effects of L-cysteine in nitrogen mustard (HN2) therapy. It was noted that the severe nausea which often occurs after the injection of HN2 was reduced and sometimes entirely absent, if patients were prepared previously with oral or intravenous L-cysteine. It was also

noted that larger doses of nitrogen mustard could be given without increase in leukopenia or thrombocytopenia. Results of this study indicate that L-cysteine in combination with HN2 may have some practical benefit.

Erythromycin, A New Antibiotic

Erythromycin is a new antibiotic which is effective orally against a wide variety of organisms. It is water soluble and relatively stable. Some laboratory and clinical observations on this new antibiotic were reported by Heilman *et al* in *Proc. Staff Meet. Mayo Clin.* 27:285 (July 16) 1952. The spectrum of activity of this agent resembles that of penicillin. Clinical evidence indicates that it is effective against most of the pyogenic infections; and laboratory data indicate that its activity against pathogenic protozoa, larger viruses and certain rickettsiae is significant. Certain of these organisms may become resistant to erythromycin.

Erythromycin is effective by oral administration; and is given in doses from 0.3 to 0.5 Gm. every 6 hours. Gastrointestinal irritation may occur in higher doses. Erythromycin is eliminated in both the urine and feces. It reduces the microbial flora of the intestinal tract but it is thought that it is not effective as Aureomycin or Terramycin in this respect. There were no evidences of systemic toxicity following administration of Erythromycin.

The availability of Erythromycin has recently been announced by Eli Lilly under the name Ilotycin and from Abbott Laboratories as Erythrocin.

Nydrazid for Leprosy

According to an announcement from E. R. Squibb & Sons, Nydrazid (Squibb Isoniazid) has been reported effective in treating leprosy. The study, carried out at two Mexican hospitals, was conducted for nine months using Nydrazid to treat fourteen lepers. According to the paper presented at a recent meeting of the American Society of Tropical Medicine, in thirteen of fourteen cases treated the lumpy nodules under the skin, and the sores in nose and eye areas which characterize leprosy were reduced substantially in size and number. In some cases these signs disappeared almost completely. Laboratory examination of tissue samples after treatment showed a reduction in the number of leprosy bacilli present in infected tissue.

The study was supported by grants from E. R. Squibb & Sons de Mexico and the Mexican Association for Action Against Leprosy.

OMPA in My asthenia Gravis

OMPA (Octamethyl Pyrophosphoramide) is a colorless, viscous, stable liquid (solid if pure) effective in treating myasthenia gravis. It is soluble in water and organic solvents. Tetraethylpyrophosphate (TEPP) has also been used in myasthenia gravis but is generally rejected because of side effects encountered in its use; it is, however, a powerful cholinergic drug. OMPA, on the other hand, appears to be much more desirable. It does not have central nervous implications; it has a wide range between therapeutic and toxic dosage; it is stable; it can be given orally; and it gives uniform results.

OMPA is converted by the liver into a substance that has anticholinesterase properties. Atropine blocks or abolishes its action. Gregory and associates of Galveston, Texas reporting in *Am. J. Med. Sci. 13*:423 (Oct.) 1952 present a study of this agent on a series of 16 patients with myasthenia gravis. OMPA, according to these patients, was the most satisfactory medication they had tried. Side effects reported were abdominal cramps, diarrhea, visual disturbances, and sweating. The medication was supplied by Eli Lilly in a one percent solution; and was administered in 14 to 36 mg. daily, divided into two doses. The dose was increased gradually until cramps or diarrhea appeared which seemed to be an endpoint for optimum therapy. These side effects can adequately be controlled with Belladonna Tincture. Some patients require neostigmine for added strength. Neostigmine, however, cannot be given within three hours of OMPA dosage since increased severity of side effects occur.

It is pointed out that OMPA does not protect against myasthenia crisis.

Hibicon in Epilepsy

Hibicon (N-benzyl-*beta*-chloropropionamide), is an effective antiepileptic agent having a chemical nucleus which is different from other drugs in this therapeutic classification. Compared with Dilantin in man and animals, Hibicon shows antiepileptic activity of the same order of magnitude, but there is significantly less side effects with Hibicon. Side effects noted with Dilantin and not with Hibicon are anorexia and muscular stiffness. This was reported by research investigators of Lederle Laboratories in *Federation Proc.* 2:355 (March) 1952.

TIMELY DRUGS

ABBOJECT . . . is the name given to Abbott's new disposable syringe designed for greater convenience in repository penicillin therapy. Abbocillin-DC is supplied as a single 600,000 unit dose for intramuscular therapy only.

* * *

A.E.P. TABLETS . . . are now supplied for hospital use by the Reaco Products of Durham, N. C. in bottles of 1,000 tablets. Each tablet contains: Aminophyllin, 0.1 Gm. and 15 mg. each of Ephedrine Sulfate and Phenobarbital. These tablets are useful for the symptomatic relief of bronchial asthma and hay fever; allergic respiratory affections; bronchial congestion and spasm with anxiety and apprehension.

* * *

APAMIDE . . . is a new analgesic-antipyretic introduced by Ames Company, Inc. Chemically, it is N-acetyl-p-aminophenol. Apamide acts directly to relieve pain and reduce fever and is said to have an intrinsic margin of therapeutic safety and freedom from sick side effects such as gastric upset, nausea, skin rashes or urticaria. It is particularly valuable in patients who cannot tolerate salicylates. Apamide is indicated for relief of pain and reduction of fever in respiratory infections functional headache, muscular or joint pain, dysmenorrhea and dental pain.

* * *

APROMAL . . . also supplied by Ames, combines the direct-acting Apamide with the clinically-proved sedative Acetylcarbromal. Analgesia and sedation are potentiated, providing a superior effect with smaller dosage. Apromal is indicated for pain or fever accompanied by tension, irritability, anxiety, nervousness, and mild emotional disturbances. It may also be used pre- and postoperatively in minor surgery and painful procedures.

* * *

AUREOMYCIN . . . is now available from Lederle in two new oral forms—a tasteless liquid and a lime-flavored syrup. These new forms will be particularly useful in treating bacterial infections in children; however, they can also be prescribed for adults.

The tasteless preparation, Aureomycin Calcium Oral Drops, is an insoluble calcium suspension of the antibiotic in water and is therefore a stable liquid. It contains the equivalent of 100 mg. of Aureomycin Hydrochloride per cc. It can be administered with water, milk or other nonacid foods or taken straight.

Aureomycin Calcium Syrup is a pleasantly flavored preparation containing the equivalent of 125 mg. of Aureomycin Hydrochloride per teaspoonful (4 cc.).

* * *

BEVIDOX . . . is a sterile solution available from Abbott Laboratories providing massive dosages of vitamin B_{12}, 1000 mcg. per cc. It is used for the treatment of pernicious anemia in relapse and several types of neurological disease. Bevidox produces no local reaction and may be administered subcutaneously, intramuscularly or intravenously. The usual dosage is 1,000 mcg. daily for five to ten days. In some patients, subsequent injections are given once or twice weekly for two or three weeks.

* * *

BRISTAPEN TABLETS . . . is a preparation for the relief of symptoms and prevention of complications of the common cold and other acute upper res-

piratory infections. Available from Bristol Laboratories, Bristapen is a combination of Bristamin Dihydrogen Citrate (brand of Pheyltoloxamine Dihydrogen Citrate), Procaine Penicillin G, Acetylsalicylic Acid, Phenacetin and Caffeine.

* * *

CER-O-CILLIN . . . in tablet form, contains Crystalline Penicillin O Potassium, 100,000 units and calcium carbonate. Supplied by The Upjohn Company, Cer-O-Cillin Tablets are recommended for oral penicillin therapy, particularly in patients who are sensitive to penicillin G. Clinical experience shows that patients exhibiting local allergic manifestations in the mouth and throat, as well as systemic reactions such as urticaria, may tolerate administration of penicillin O tablets. As the antibacterial activity of penicillin O is similar to that of penicillin G, it is useful in treatment of infections caused by penicillin-susceptible organisms.

* * *

CILLORETS . . . is an effective Penicillin-Bacitracin combination in hard candy troche form for the treatment of certain throat, mouth and dental infections. Each Cilloret contains 20,000 units of Crystalline Penicillin G Potassium and 50 units of Bacitracin and are individually packaged in assorted flavors which completely mask the taste of the antibiotics. Cillorets are supplied by Bristol Laboratories. They are stable at room temperature for a period of twelve months.

* * *

CORTICOTROPIN (ACTH) . . . is Upjohn's preparation of adrenocorticotropic hormone supplied in sterile vials containing 25 U.S.P. units and 40 U.S.P. units.

* * *

ERYTHROCIN . . . is Abbott's name for Erythromycin, a new antibiotic which is effective orally against a wide variety of organisms. As yet, it is available only in limited supply to the medical profession. Erythrocin is supplied in small, specially coated tablets. No serious side reactions have been reported and it is low in toxicity. Erythrocin is valuable in the treatment of infections produced by staphylococci, streptococci and pneumococci as well as certain other organisms. While Erythrocin's activity is similar to that of penicillin in many respects, it appears particularly effective against organisms which have lost their susceptibility to penicillin or to other antibiotics.

* * *

CORTOGEN ACETATE INJECTION . . . (Cortisone Acetate or Compound E) is available from Schering Corporation for the treatment of early rheumatoid arthritis, rheumatic fever, early juvenile arthritis (Still's disease), early psoriatic arthritis, early disseminated lupus erythematosus, Addison's disease, bronchial asthma, hay fever, serum sickness, drug sensitivity, angioedema, inflammatory eye diseases, exfoliative dermatitis, adrenogenital syndrome panhypopituitarism, and pemphigus. In some other diseases, the beneficial effects have been transient. Cortogen Acetate Injection is available in multiple dose vials of 10 cc.

* * *

DISTRYCILLIN A. S. . . . is Squibb's preparation of Procaine Penicillin G, 400,000 units in combination with Dihydrostreptomycin Solution, 0.5 Gm. per cc. This combined Penicillin-Streptomycin preparation provides certain advantages over single antibiotic therapy—more rapid control of infections, reduced chance of the emergence of resistant strains, reduced chance of drug toxicity because smaller amounts of both antibiotics may be used, and greater chance of preventing secondary infection.

* * *

FEOSOL HEMATONIC . . . for use in treating anemias, has been introduced by Smith, Kline and French. This preparation has been made available as the result of recent clinical work indicating that five principal factors are necessary to optimal hematologic response. These are supplied in Feosol Hematonic as vitamin B_{12}, gastric substance, folic acid, ascorbic acid and ferrous sulfate. This preparation is indicated in microcytic and most macrocytic anemias, and tropical and non-tropic spru.

* * *

GANTRISIN PEDIATRIC SUSPENSION . . . for oral antibacterial therapy in children, has been introduced by Hoffmann-La Roche. It is a raspberry-flavored suspension, each teaspoonful containing 0.5 Gm. of Gantrisin, brand of Sulfisoxazole. A recently published report in the *Texas Rep. Biol. and Med.* 9:764 (1951) confirms the effectiveness

of Gantrisin in infants and children in such clinical conditions as tonsillitis, otitis media, pharyngitis, bronchitis, pneumonia, bacterial diarrhea, acute skin infections and urinary infections. Because of the high solubility of Gantrisin, forcing of fluids and concomitant use of alkali medication is unnecessary.

* * *

MENAGEN WITH METHYLTESTOSTERONE . . . (oral estrogenandrogen, Parke, Davis) is combined estrogen-androgen therapy in oral form for use in treating symptoms in the male and female climacteric. The preparation is supplied in soft gelatin capsules, each containing Menagen equivalent to the estrogenic activity of 10,000 international units ketohydroxyestratriene, and 10 mg. methyltestosterone, in bottles of 100 capsules.

* * *

MYADEC . . . is a Parke, Davis vitamin preparation to be used as a nutritional aid. It provides the essential vitamins in therapeutic potencies, and significant quantities of important minerals together with trace elements for nutritional supplementation.

* * *

NATALINS . . . is the name given to a new prenatal nutrient capsule by Mead Johnson and Company. The capsules contain vitamin A, vitamin D, ascorbic acid, thiamine hydrochloride, riboflavin, niacinamide, pyridoxine hydrochloride, calcium pantothenate, folic acid, vitamin B_{12}, ferrous sulfate, calcium phosphorus, and some trace elements, all in amounts deemed practical by physicians. Natalins are exceptionally small in size and the dosage is only three capsules daily.

* * *

NYDRAZID INJECTION . . . is Squibb's preparation of Isoniazid for injection. Used as an antituberculosis agent, Nydrazid Injection will be especially useful in treating unconscious patients, those few who cannot take the drug orally because of gastric upset, and patients who refuse oral medication. It is supplied in 10 cc. vials of 100 mg. per cc.

PENICILLIN G PROCAINE IN AQUEOUS SUSPENSION . . . 3,000,000 Units, 10 doses, is now supplied by Abbott with a small amount of harmless suspending and dispersing agents in a form which "breaks" quickly from the walls of the silicone-treated vial.

* * *

SPECTROCIN . . . (Squibb Neomycin-Gramicidin) is a new antibiotic combination which can be administered topically without danger of sensitizing the patient to antibiotics that are used orally or parenterally for serious disorders. Spectrocin is available in ointments and troches. It is effective against many gram-positive and gram-negative organisms, including those responsible for most superficial bacterial infections of the skin, eyes, mouth and throat. Since neither Neomycin nor Gramicidin is used for systemic therapy, the topical use of Spectrocin involves no risk of sensitizing the patient against the subsequent use of Penicillin or other systemic antibiotics.

* * *

SUGRACILLIN . . . is a form of oral penicillin, supplied in flavored granules and packaged in 60 cc. bottles by The Upjohn Company. When sufficient water is added to fill the bottle, Sugracillin provides a pleasantly flavored solution containing 250,000 units of penicillin in each 5 cc. (teaspoonful). The solution is stable for a week when kept in a refrigerator. Sugracillin is used for the same infections as is other oral penicillins, but is of particular use in pediatrics and for patients who prefer fluid medication.

* * *

THEELANDROL . . . (Theelin-testosterone propionate aqueous suspension, Parke, Davis) is a combined estrogen-androgen preparation for intramuscular use. Each cc. contains two mg. of Theelin and 20 mg. of Testosterone Propionate. Theelandrol is used for the relief of climacteric symptoms in patients of either sex. It is supplied in five cc. Steri-Vials.

* * *

VITA-KAPS . . . Abbott's high potency vitamin preparation, is now available in small, yellow compressed tablets instead of capsules, offering the advantages of palatability and stability at room temperatures.

A.S.H.P. AFFILIATES

"Radio-Active Isotopes in Peace and War" was discussed by Dr. Winston Walker of Hopkins Clinic, Inc., at the September 24 meeting of the CLEVELAND SOCIETY OF HOSPITAL PHARMACISTS. Included also on the program was a film on "Anemias" supplied by E. R. Squibb.

The first meeting of the 1952-1953 season of the PHILADELPHIA HOSPITAL PHARMACISTS' ASSOCIATION was called to order on September 23 at the Temple School of Pharmacy. Letters of appreciation for efforts expended during the A.Ph.A. Centennial Convention were received from the secretary and president of the ASHP and from Mr. William T. Fink, chairman of the Service Committee. New members were introduced and committee appointments made.

On the program was Dr. Lawrence Hobson, associate medical director of E. R. Squibb & Sons, who presented an informative talk on Nydrazid, its actions and uses in the treatment of tuberculosis.

At the September 21 meeting of the HOSPITAL PHARMACISTS' ASSOCIATION OF GREATER ST. LOUIS, Mr. M. R. Kneifl from the Catholic Hospital Association discussed the Proposed Point-Rating Plan for evaluating pharmacy service. It was suggested that each hospital pharmacist evaluate the pharmaceutical service in his institution and this information will be used as a basis for work being done by the ASHP Committee on Minimum Standards.

There was also discussion of the new law in Missouri which requires every establishment which compounds prescriptions to obtain a permit annually from the Board of Pharmacy.

Reports were presented on the Institutes on Hospital Pharmacy held in Cleveland and Toronto during the summer months.

"A Broad Spectrum View of Antibiotics" was the title of paper discussed by Mr. W. McCormack of the Parke, Davis and Co. at the October 14 meeting of the St. Louis Association. Also, the twenty-five members attending were welcomed to Barnes Hospital by Dr. C. O. Vermillion, assistant director.

The PUGET SOUND SOCIETY OF HOSPITAL PHARMACISTS met at the Virginia Mason Hospital in Seattle on September 9. The principal speaker was Dr. Joseph Crampton of the Mason Clinic who discussed diseases of the thyroid.

Announcements were made in regard to plans for sponsoring the "Showboat Theatre" on December 9 and members were urged to attend a banquet commemorating National Pharmacy Week on October 7.

At the October 14 meeting, Dr. Elmer Plein reported on the conventions of the A.Ph.A. and the ASHP held in August in Philadelphia.

New officers of the Puget Sound Society are President Elizabeth Elliott, Maynard Hospital, Seattle; Vice-President Bent Archer, VA Hospital, American Lake, Wash.; Secretary Mrs. Dorothy Bradley, St. Joseph's Hospital, Tacoma, Wash.; and Treasurer Ted Taniguchi, Harborview Hospital, Seattle.

The MASSACHUSETTS SOCIETY OF HOSPITAL PHARMACISTS met in Worcester on September 17 with 32 members present. The principal speaker, Mr. Salvatore Gasdia, discussed "The New Concepts of Dermatological Therapy" outlining the methods of preparation of ointments and washes used at the Massachusetts General Hospital in Boston. A report on the A.Ph.A. and ASHP conventions was presented by Mrs. Ethel Pierce.

Discussions covered the possibility of a survey of the potential membership of the Massachusetts Society; the regulation of some state boards allowing only six months credit for experience acquired in the armed services; and the resolution passed by the American College of Apothecaries condemning the practice of filling prescriptions for outpatients in hospitals.

The quarterly dinner meeting of the NORTH CAROLINA SOCIETY OF HOSPITAL PHARMACISTS was held at the Robert E. Lee Hotel in Winston Salem on October 25. Following the

dinner sponsored by Parke, Davis and Company, Miss Virginia Caudle, chief pharmacist at the City Hospital in Winston Salem, welcomed the members and guests on behalf of the local pharmacists.

The speaker, Dr. Robert W. Prichard of the Bowman Gray School of Medicine, was introduced by Mr. Ernest Rollins. Dr. Prichard presented an informative and entertaining talk on "Present Status of Hematological Remedies," speaking on each class of this group of drugs from iron to the so-called "shot gun" preparations.

Officers of the Society of Alabama Hospital Pharmacists: LEFT TO RIGHT: *President Robert F. Yarbrough, Treasurer Oma Dell May, Secretary Mary Lancaster, and Vice-President Sister Vincent Kurtzeman.*

THE SOCIETY OF ALABAMA HOSPITAL PHARMACISTS (S.A.H.P.) was organized in Birmingham, Ala. on October 11 with nineteen charter members. The group met in conjunction with the semi-annual meeting of the Southeastern Society with Mrs. Lillian Price and Miss Johnnie M. Crotwell from Atlanta representing the Projects Committee of the regional organization. Also present was Miss Gloria Niemeyer from the Division of Hospital Pharmacy of the A.Ph.A. and ASHP. The members of the new Alabama group voted unanimously to affiliate with the national organizations as well as the Southeastern Society.

The SOUTHEASTERN SOCIETY OF HOSPITAL PHARMACISTS opened its semi-annual meeting at the Tutwiler Hotel in Birmingham, Ala. on October 11 with the news that two more of its group had organized state societies—the Society of Alabama Hospital Pharmacists and the Tennessee Society. The two-day meeting presented a well rounded program and special events for the 75 members and guests who traveled from most of the Southern states east of the Mississippi. President Ernest Rollins, chief pharmacist at the North Carolina Baptist Hospital in Winston Salem, presided over the business sessions and the program was in charge of Miss Valerie Armbruster, chief pharmacist, Charity Hospital, New Orleans, La.

At a dinner dance sponsored by the NEW JERSEY SOCIETY OF HOSPITAL PHARMACISTS on October 12, President Rudolph Wilhelm presented Dean Roy A. Bowers with a check for one thousand dollars to be directed toward initiating a course in hospital pharmacy at Rutgers University College of Pharmacy.

A souvenir journal, issued for the occasion, carried a history of the New Jersey Society dating from its concept in 1946. Also included is a listing of 81 practicing hospital pharmacists in New Jersey and excerpts from the Decennial Issue of THE BULLETIN covering pharmaceutical education and training.

In conjunction with the $1,000 fund established by the New Jersey Society at Rutgers University, a special committee headed by Anna C. Richards, met with Dean Roy A. Bowers and other faculty members to initiate planning for the inclusion of hospital pharmacy training in the college curricula. Herbert Flack was present for the meeting and he will present the initial series of lectures to be offered to senior pharmacy students in the form of a workshop.

A luncheon of the TEXAS SOCIETY OF HOSPITAL PHARMACISTS together with hospital administrators and representatives of pharmaceutical firms was held in Fort Worth on August 14 during the annual convention of the Texas Retail Druggists' Association.

Graydon Payne, chief pharmacist at the City-County Hospital in Fort Worth, presided at the informal meeting which he had arranged to provide an opportunity for administrators in the area to discuss mutual problems and responsibilities with members of the Texas Society. Lowell Hudson, administrator of the City-County Hospital, spoke on the relationship of the administrator and the pharmacist, stressing the vital position of the pharmacy in the financial structure of the hospital and the great need for complete understanding and appreciation of this by both administrator and pharmacist. Lewis Smith, chief pharmacist at Baylor University Hospital, Dallas, talked briefly on the growth of the pharmacy in his institution.

EDITOR'S NOTE: We regret that it is not possible to include complete reports of the activities of all affiliated chapters.

as the president sees it

GROVER C. BOWLES
Strong Memorial Hospital, Rochester, N. Y.

I could easily fill this page and perhaps several more with my impressions of the First International Congress of Hospital Pharmacists held in Basle, Switzerland, September 17-19. The report which you will find in this issue of THE BULLETIN gives the highlights of the Congress but it can in no way convey to you the warm welcome and the cordial hospitality extended to the ASHP delegation by our European colleagues.

Those in this country who assist in the planning of conventions, institutes, and other meetings could learn much from Dr. Kurt Steiger who organized this congress and from Mrs. Steiger who worked so hard behind the scenes to make this first venture in international hospital pharmacy a grand success.

The ASHP delegation to the Congress was made up of Tom Reamer, Claude Busick, Jean Whitmore, Jacqueline Claus and myself. On Saturday following the close of the meetings we visited the Zurich Hospital where Kurt Steiger is chief pharmacist. This spacious, well equipped pharmacy manufactures pharmaceuticals for all the hospitals in the Kanton of Zurich and could compete favorably with some of the small pharmaceutical plants in this country. Certainly it is the largest, best equipped, most complete, and cleanest hospital pharmacy I have ever seen. In the evening, the American delegation joined Bert Grainger of London and Miss H. J. Hinks of Bucks, England for dinner with the Steigers at the Saffran Restaurant which at one time was an Apothecary Guild House. This provided a wonderful opportunity for us to discuss our Decennial meeting in retrospect and to hear about the impressions of the United States which Bert Grainger and Kurt Steiger took home with them.

After the Congress I spent several days visiting the hospital pharmacies in Switzerland and Paris. I found the pharmacists at these hospitals eager to talk about their problems and to listen to the problems of an American hospital pharmacist. They were interested in hearing about the spectacular growth of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the place it occupies in American Pharmacy. I was indeed happy that I had several copies of the Decennial Issue of THE BULLETIN to leave with them.

On my return to Paris, I visited the University of Paris School of Pharmacy. Here Jacqueline Claus, who incidently, is a graduate of this school, conducted me on a tour, introducing me to members of the faculty and acting as an interpreter during an interview with Dean Rene Farbre. Later we were dinner guests at the home of Professor and Mrs. Jean Chemyol. Dr. Chemyol, a leader in the International Pharmaceutical Federation is professor of pharmacology at the school of medicine and chief pharmacist at the Tenon Hospital. Their son and daughter added much to the evening making it an outstanding experience and I left their home with the feeling that if international relations could be reduced to an individual basis, many of the problems confronting the world today would not exist.

HUMAN RELATIONS

Human relations, public relations, personnel relations and intraprofessional relations are terms we often hear these days. Many articles and scores of textbooks have been written on these subjects and most businesses of any size employ a full time staff to maintain good relations with their customers and employees. At times it seems that this phase of daily living has become greatly complicated and that one must be an expert in the field in order to cope with the many problems which arise when dealing with people. I often wonder what would happen if we just applied some unadultrated common sense in our dealings with others, remembering that people are people and appreciate being treated as such. Under the glass on my desk is a clipping which I took from a journal several years ago and unfortunately I do not have the source and have no idea who originated it. I have found that it solves most of my problems when dealing with people and I should like to pass this simple formula on to you:

Be brief .....politely
Be aggressive .....tactfully
Be emphatic .....pleasantly
Be positive .....diplomatically
Be right .....graciously

NEWS ITEMS

Skolaut Appointed Chief at NIH

MILTON W. SKOLAUT, formerly acting chief of pharmaceutical services at the Public Health Service Hospital, Staten Island, N. Y., has been appointed to the position of Chief of the Pharmacy Department of the Public Health Service's new 500-bed Clinical Center at Bethesda, Md. The Clinical Center, which opens in April, is to be the clinical research facility of the National Institutes of Health, the chief research arm of the Public Health Service. Mr. Skolaut's appointment was effective as of June 9.

Mr. Skolaut will be in charge of the pharmaceutical and central sterile supply service programs of the Clinical Services and will direct the progress of pharmaceutical research relating to clinical research programs in the fields of chemistry, pharmacognosy, pharmacology, bacteriology, pharmacy and allied fields. He will be responsible for establishing policies and procedures for operating a complete hospital pharmaceutical service which manufactures, compounds and dispenses drugs, medical and related health preparations needed for research, therapeutic, prophylactic, dietetic and other uses.

He will serve as drug therapy consultant to the Clinical Center professional staff and clinical research teams of the seven Institutes comprising the National Institutes of Health and will act as technical advisor on pharmacodynamics to the Clinical Directors and investigators.

Mr. Skolaut has been a pharmacy intern in hospital pharmacy at the Johns Hopkins Hospital, an assistant pharmacist and pharmacist instructor at the University of Maryland School of Pharmacy, the manager of a drug company, and assistant chief pharmacist at Johns Hopkins, to which he returned in 1947. He entered on duty with the Public Health Service in the summer of 1949 and now holds the rank of Senior Pharmacist.

Hospital Pharmacy in Wisconsin

"The Regulation of Drugs in Hospitals" is the title of an article by Mr. Sylvester H. Dretzka appearing in *Wisconsin Hospitals,* October, 1952. Mr. Dretzka, secretary of the Wisconsin State Board of Pharmacy, directs the article to hospital administrators pointing out the "unique and tremendously important position held by the hospital pharmacist." He discusses the work of the Wisconsin Board in regulating drugs in hospitals emphasizing the need for the services of a registered pharmacist in hospitals. He further discusses the role of the pharmacist concluding that the hospital pharmacist "is in an excellent position to be an inspiration to the entire profession in the advancement toward perfecting the service rendered for the public welfare."

Bulletin FIP—Hospital Pharmacy Number

A special Hospital Pharmacy issue of the *Bulletin* of the Federation Internationale Pharmaceutique is now in preparation and will be available soon. This issue will be devoted to the special features of hospital pharmacy practice in several European countries and will include the papers on this subject presented at the Rome meeting of the Federation in 1951.

This issue of the Federation *Bulletin* should be of interest to all hospital pharmacists and should be of particular interest to those in teaching or having pharmacy interns.

Those interested in obtaining copies of this issue of the *Bulletin* of the Federation, as well as receiving the publication regularly, may do so by becoming associated members of the Federation. Send your name, title, and address (together with your check for $2.75 for dues) to Don E. Francke, University Hospital, Ann Arbor, Michigan, and the matter will be taken care of.

Houston Hospital Pharmacists

Houston Area Hospital Pharmacists met at Oberholzer Hall, the University of Houston, for a dinner meeting on Monday night, November 10, at which administrators of Houston hospitals were special guests.

Paul Hudson, chief pharmacist of VA Hospital and chairman of the Houston group, presided at the meeting, and Dr. Ruth Kroeger of the College of Pharmacy was in charge of the program which featured Dr. N. M. Ferguson, dean of the school, and James McKinley, Jr., chief pharmacist of M.D. Anderson Hospital for Cancer Research, who gave a paper on his internship at

Johns Hopkins University Hospital in Baltimore. Among those attending were students of the College of Pharmacy and detail men especially interested in hospital pharmacy.

Volume I of The Bulletin Available

To meet the many requests for a complete set of THE BULLETIN, Volume I which appeared in mimeograph form, is now available for three dollars. This includes Number 1 (June, 1943) to Numbers 13-14 (November-December, 1944).

Beginning in January, 1945, THE BULLETIN was issued in its present form and some of these early numbers are available at seventy-five cents each. Inquiries concerning the availability of back issues should be sent to: THE BULLETIN of the ASHP, 2215 Constitution Ave., N.W., Washington, D. C.

Frank Steele on ASTM Committees

FRANK J. STEELE, chief pharmacist at The Greenwich Hospital Association, Greenwich, Conn., has been elected a member of the following subcommittees of the American Society for Testing Materials: G-4 on Membership; T-4 on Detergents; and T-1 on Soap Analysis.

Reprints of Bibliography Available

Reprints of the *Comprehensive Bibliography on Hospital Pharmacy,* published in THE BULLETIN in 1951, are available for one dollar each. The Bibliography covers the literature for approximately 20 years and is arranged according to subject.

Glenn Sonnedecker Appointed Assistant Professor

DR. GLENN SONNEDECKER, secretary of the American Institute of the History of Pharmacy, has been appointed assistant professor of the history of pharmacy at the University of Wisconsin School of Pharmacy. He replaces Dr. George Urdang, the first occupant of the chair, who has become professor emeritus after reaching his seventieth year of age.

Dr. Sonnedecker was the first one to obtain a joint doctorate in the history of pharmacy and the history of science at the University of Wisconsin. His thesis dealt with "American Pharmaceutical Education before 1900."

Pharmacists in Small Hospitals

A special SOCIETY Committee has been appointed to study the role of the pharmacist in the small institution. The committee is headed by Mr. Thomas A. Foster of the Public Health Service,

National Pharmacy Week—1952
The above display was exhibited at St. Luke's Hospital in Cleveland, Ohio, where Mrs. Evlyn Gray Scott is chief pharmacist. Other hospital pharmacists known to participate in National Pharmacy Week this year include Sister Mary Oswalda at St. Joseph's Hospital, Scranton, Pa., and Mr. Neal Johnston, Springfield City Hospital, Springfield, Ohio.

Washington, D. C. and he has asked the affiliated chapters to compile lists of hospital pharmacists practicing in institutions of less than one hundred beds. Since this information is not now readily available, we hope that the affiliated groups, as well as individual SOCIETY members, will assist with the project. If *you* are practicing in one of these small hospitals, will you forward your name and address along with other pertinent information about the duties you perform to Mr. Foster.

Hospital Pharmacist Recognized

MR. WILLIAM H. STOLTZ, pharmacist at Hartford Hospital, Hartford, Conn., has been awarded a service pin in recognition of twenty five consecutive years of service to the hospital and to the community.

Institute Date Changed

The 1953 Institute on Hospital Pharmacy, originally scheduled in August, will be held during the week of *June 15*. Arrangements for meetings and housing for the institute enrollees have been made at Loyola University in Los Angeles. Information in regard to the program will be published in a forthcoming issue of THE BULLETIN and all ASHP members will receive applications.

NEW MEMBERS

NOVEMBER 1, 1952

ALABAMA
Sevastos, Lt. James P., 3882d Sch. Sqdn., Box 1, Gunter A.F. Base, Montgomery

ARIZONA
Hawkins, Doris B., 1333 E. Mabel St., Tucson (A)
Willer, Wayne W., 801 E. Amelia, Phoenix

CALIFORNIA
Akana, Kam C., 1046 S. Victoria Ave., Los Angeles
Angelini, Albert H., 2435 Union St., San Francisco
Broodeen, Luther L., 10369 Ilona Ave., Los Angeles
Cowles, Marcia V., St. Francis Hospital, Santa Barbara
Miller, Orville H., 10722 Oregon Ave., Culver City
Strohbeck, William H. Jr., Pharmacy Resident, James Wadsworth Hosp., V. A. Center, Los Angeles

CONNECTICUT
Cacchillo, Anthony F., 307 Olivia St., Derby (A)
Tyrell, Stephen J., 3 Hickey St., Stratford

Solicit Membership

Support Affiliated Chapters

Attend Annual Conventions

Promote Better Hospital Pharmacy Practice

Participate in National Organizations

DELAWARE
Herholdt, Fred D., 501 Fairview Ave., Dover (A)

DISTRICT OF COLUMBIA
Healy, Madeline F., 2131 O St., N. W., Washington

ILLINOIS
Arnold, Joseph V., 2800 W. 95th St., Chicago
Prousis, Patricia M., 5416 S. Ridgewood Court, Chicago
Sister M. Hortensia Kizior, 1120 N. Leavitt St., Chicago

INDIANA
Fiege, Robert W., 4735 Washington Blvd., Indianapolis

IOWA
Parton, Glenn, 2108 Muscatine, Iowa City

KENTUCKY
Leist, Joanne C., c/o Dr. K. O. Lange, Richmond Rd., Lexington
Moore, William I., 226 E. Chestnut St., Louisville
Sister Anne (Snow), St. Joseph Hospital, Lexington

LOUISIANA
Cisneros, Mrs. Robert M., 6910 Vicksburg St., New Orleans
Ussery, James C., 1508 N. 5th St., Monroe

MARYLAND
Bechtloff, Kenneth E., MSC, USN, 501 Domer Ave., Takoma Park
Cassidy, Elizabeth C., 4918 Midwood Ave., Baltimore
Foss, Noel E., 32 S. Greene St., Baltimore (A)

MASSACHUSETTS
Moloney, Joseph F., 14 Arbutus Rd., Swampscott (A)
Surabian, Z. Robert, 32 Churchill Ave., Arlington

MICHIGAN
Little, Mary Jane, Rte. 6, Milford
MacCartney, John A., Parke, Davis & Co., Detroit (A)
Schmalz, John D., 1089 Oxford, Berkley
Sister M. Helena Otterbacher, 51 Vine, Manistee
Sister Zoe Shaughnessy, 2500 W. Grand Blvd., Detroit

MINNESOTA
Lampe, Marilyn I., 1932 Emerson Ave So., Minneapolis

MONTANA
Sister Mary Wilhelmina (Bourke), St. Patrick Hospital, Missoula

NEBRASKA
Brown, Sgt. Clarence C., 3902d Medical Group, Offutt Air Force Base

NEW JERSEY
Adams, Ernest W., St. Francis Hospital, Trenton
Biamonte, Alfred R., 515 S. Chestnut St., Westfield (A)
Nickl, George M., 150 Ward Pl., South Orange
von Stanley, Eugene, 2505 Columbia Ave., Trenton

NEW YORK
Bittson, Eva B., 71-44 260th St., Floral Park
Case, Robert W., 208 Northfield Rd., Rochester

Cohn, Benjamin C., Hosley Ave., Tupper Lake
Holzman, Beverly, 167 Irvington Rd., Rochester
Hubbard, Irving, 14 Dayton St., Clifton Springs
Hyams, Leonard, 488 Warwick St., Brooklyn
Pisanelli, Rosemarie, 393 Rogers Ave., Brooklyn
Podbur, Rubin, 3951 Gouverneur Ave., Bronx
Teicher, Philip, 250 Norton St., Rochester
Williams, Myrna J., 339 Windsor Rd., Rochester

NORTH CAROLINA
Stutts, Evelyn L., 12 Main St., Lincolnton

OHIO
Ames, Reede M., U.S.P.H.S. Hospital, Fairhill Rd. & E. 124th St., Cleveland
Escavage, Freda, 1045 Argonne Rd., South Euclid

OKLAHOMA
Barnes, James F., 1219 N. W. 10th, Oklahoma City (A)
Brandenburg, James A., 716 N. Custer, Weatherford (A)
Burger, William B., Box 615, Norman (A)
Clark, Ronald D., 202 Neff Hall, Weatherford (A)
Culp, Bobby J., 224 E. College, Weatherford (A)
Haithcock, Alfred R., 916 N. Bradley, Weatherford (A)
Hauser, Louis D., 224 E. College, Weatherford (A)
Hill, Elvin E., A-3 Vetsville, Weatherford (A)
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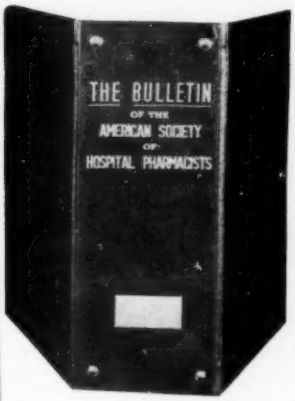

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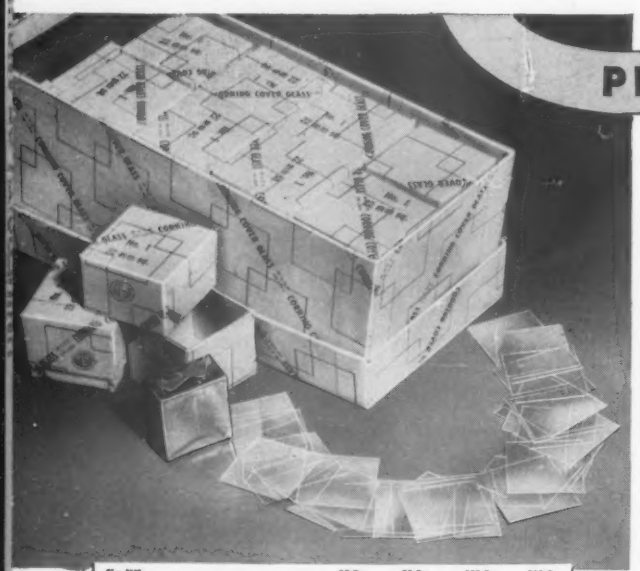

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